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HEALTH EDUCATION NUMBER

Giving the Complete Symposia Presented at the New York Meeting

I. **Motion Pictures.**
Discussion by Messrs. Routzahn, Turner, Osborn, Ellis, Meyer, Kleinschmidt, Jacobs.

II. **How to Further Progress in Health Education and Publicity.**
Discussion by Messrs. Routzahn, Snow, Dinwiddie, Dealey, Rickards, Marcus, Evans, and Mesdames Routzahn and Rose.

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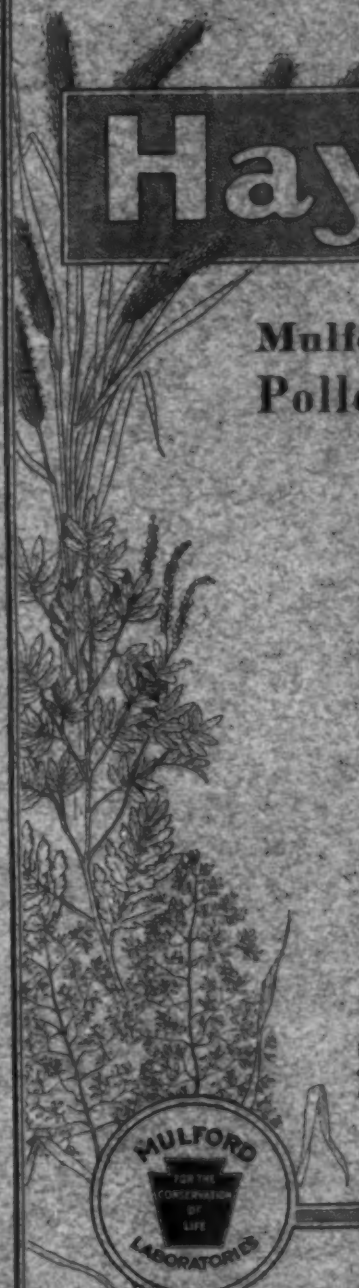

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SYMPOSIUM ON MOTION PICTURES

Including the principal discussions given at the first session of the Health Education and Publicity Group, Fiftieth Annual Meeting, American Public Health Association, New York City, November 14, 1921

Introductory Remarks

E. G. Routzahn, *Chairman*

Department of Surveys and Exhibits, Russell Sage Foundation, New York City

There are two main problems in utilizing motion pictures in health education and publicity: First, production of pictures; second, distribution and use of the pictures. Either of these problems offers a range of topics for discussion sufficient for more hours than we have to give to the entire subject of motion pictures. Hence the committee planned to limit the program to a few aspects of the production situation.

As to distribution, the chairman would call attention to the need of study and the need, probably, of concerted action in order to work out the problems of distribution and of wide and efficient use of pictures. Briefly, while there is a considerable number of good health films in existence, it is nevertheless true that the many workers in the health field have available at any given time and place so few pictures from which to make a choice that they are frequently willing to take anything that is offered. And not a few of the films offered them are so badly arranged, or out of date, or mixed with advertising, or containing errors of fact or of instruction, that one is inclined to urge that their use can be of very little gain to the health movement.

Turning to production, to which we will give our attention, I would urge that in many cases there should be four parties to the production of a health motion picture. One is the producer; the second is the agency which is to get it out, that supplies the basic material; third, a group of people to try it out on before it is put on the market, as advertisers more and more are trying out their printed matter and their merchandise on would-be consumers. Sometime we may find in our convention program a chance for discussing how advertisers test out even the packages that they put their goods in, how they test them out upon people who buy them, how they find out what arguments will win in the selling of coffee or something else of that sort. We have not begun to do that in the health field. Possibly it is the thing we ought to do in connection with the motion-picture production.

Fourth, is the man who is neither the producer nor an agency, but who understands the problems of the two and can

help them see what either or both do not see, and possibly help to explain one to the other. The difficulty I have found in some cases is that the producer is not able to understand the health worker and the health worker does not see what the producer means. They sometimes use similar words without meaning the same things. Or they have the same ideas but use different terminology. In the confusion neither producer nor health agency does the best work on the picture. Now, if they can go outside of their own ranks and get some one to view that picture in various stages, although they may not always follow his advice they are very likely to get some help in working it all out. This fourth man should have a degree of sympathetic knowledge of the technique, limitations, and ideals of both the producer and the health agency.

The aim of this session is not to give final answers to the questions which will be discussed, but rather to get those questions fully before us. Then we may expect that during this year as we go about our work in various cities we will give some thought in common to both the questions and the answers which will be given to-day.

QUESTION I

"Should there be any difference in the type of picture produced for classroom use and that for popular education?"

PROFESSOR C. E. TURNER

Department of Biology and Public Health, Massachusetts Institute of Technology, Cambridge, Mass.

The motion pictures which deal with health education may perhaps be divided into four types. There is the long drama, which introduces into a lot of human interest certain health information and which is distributable through the motion picture theatres. Such a film, which can put across health information, just as our best playwrights have put across moral ideals or sociologic information is a useful product, but obviously we cannot use that in the classroom. We have not the time to entertain children in school hours.

The second type of picture is the type which might be called a propaganda film, a picture which is made by some private organization and which shows the people who view the picture why they should be enthusiastically interested in that particular organization, whether it deals with infant welfare or child hygiene, or whatever it may be—a perfectly legitimate and useful type of picture.

In the same group, you might put the advertising picture which advertises a particular brand of milk or food because it is a highly valuable or sanitary food. This is also useful, but it has no place in the public-school program. The educational authorities cannot carry on propaganda for any company or for any product.

The third type is not a propaganda picture, in that the health information which it gives is generally accepted scientific information which is prepared for a general audience, rather than to fit the school curriculum. The only possible question as to whether any of the first three types should be used in the schools, centers about this film.

The fourth type is the picture prepared for school use—a class film, a school film, which I believe is distinctly different from the films used in the education of the general public. In the film for popular education, you must appeal to the interest of the audience. Otherwise, they won't come again. In the case of the school child, he is there, on the job to learn. That is his business, to get information, and it is not necessary to make an appeal to his interests to maintain his attention. He is given prelim-

inary material and the motion picture is followed up by other instruction. No one thinks that the motion picture is to take the place of the teacher. It is merely an auxiliary.

In making a picture, you must produce either for the general public, or for a special group. That is, just as in writing a book, you must have in mind clearly the audience which is going to receive the information you are trying to present, and you cannot do everything in a thousand feet of reel. You cannot present a drama, an interesting story, a lot of propaganda, and a lot of detailed information suitable for all kinds of people in a single film. You have to sacrifice some of those characteristics if you would carry others essentially valuable. And the film for school service should be made for a definite group, and should have the instructional point of view.

It should present simply one or two fundamental facts, just as in preparing a lesson, the teacher attempts to put over one or two fundamental facts. It should be prepared for the group of students that is ready for that information. If you are preparing a film on the nature of bacteria, you may be preparing it for a group that has a certain fundamental background, but has not been trained, or has never seen bacteria. If you are preparing a film on the diagnosis of diphtheria, you are preparing a film for students who have additional information and are ready for the particular point you are ready to present. You assume the information which they already have and proceed in a logical fashion from that point.

Now, I believe it sometimes happens that a film which is prepared for school use may be useful elsewhere. If the health officer is going to talk to a group of people on sanitation and he wants to show them what bacteria are like, and an educational picture is obtainable for the purpose which fits into the teaching which he is doing for the moment, he is giving the material to a class of people that are ready for that particular information and it fits in very well. But the business of education is such, in my belief, that we ought to provide a systematic health-instruction program throughout our schools, adapting the material in each grade for the pupils in that grade. We ought to be just as careful to save the time of the pupil and present concisely the information which the pupil ought to have at that particular time in the picture as we are in the text-book, and the public school is not, it seems to me, in a position to receive pictures that are produced for other purposes or groups, and do not fit into its program. Just as we are trying to get away from the occasional talks on health by the public-health nurse and introduce constructive, organized, unified health instruction, so we ought to get away from the idea that we can grab up any health educational picture which happens to be available, fit it into any particular class which happens to have a half hour to see it, and fool ourselves with the idea that we are using the time of the pupil to the best advantage. I believe that we ought to recognize and very clearly that the job of producing films for the school child is a different sort of a job from that of producing any of the other three varieties of films which I have mentioned which are primarily for the general audience.

QUESTION II

"What standard should be set for the pictures used by health agencies?"

STANLEY OSBORN, M. D.

State Department of Health, New Haven, Conn.

Whatever standards we may decide upon, it would seem important first of all for the health agency to view a picture not from the standpoint of the scientific man but from that of the public which is to see it. We may imagine this public as composed of persons whose standard of knowledge is about that of a grammar school graduate or slightly higher.

On the whole, it seems to me that a large share of the pictures that we have now are too advanced for the public that we attempt to reach. Most of us view pictures from our own standpoint, saying they are good or bad according to whether or not they appeal to us, rather than trying to put ourselves in the position of persons of eighth-grade or first- or second-year high-school education that make up the public we are trying to educate.

As to physical standards, many films are shown that are in a deplorable condition. I feel that we ought to go on record as opposed to the showing of any films that are streaky or are injured by age because these conditions detract indirectly from the educational value of the picture. The public nowadays even in ordinary picture houses demands a picture that is flickerless and that can be watched without straining the eyes.

As to the thought presented by a film, it should have only one major point. If we take the subject of diphtheria, we should treat one phase of it in a film and it should be at most a one- or two-reel film. Our audiences will not stand for four- or five-reel films containing many minor details. The short film with a punch may put over the fact that diphtheria or any respiratory disease is spread from the nose and mouth. If the subject is the reduction of infant mortality, it is far better to treat simply one phase of that in simple fashion than to attempt a long film covering the whole subject.

The standards of language of the film I think can be popularized. Of course we would not desire to use slang in a health picture, but we could use simpler names than bacillus or treponema to an extent that we do not do now, rather than to seek to produce titles that are difficult for the audience to understand.

EDWARD STUART

American Red Cross, Washington, D. C.

Is it possible or practicable to set a standard for motion pictures used by health agencies? If so, what are the various points to be considered?

It seems to me that the standards divide themselves roughly into two groups. The first are those which should be determined by health workers and specialists in the various fields of health. The other set of standards should be required by the producers and agencies who wish to make acceptable films.

The first group of standards includes technical accuracy. We all, of course, want technical accuracy, and it may be that it can be best obtained by coöperation among health agencies. It also includes the questions which have already been taken up of how long a film should be and what should be the proportion of propaganda and story.

In regard to technical accuracy, it is something that we are all working for. I hope that the day is past when we shall receive such films as the one which was shown to the entire A. E. F. in France, giving the information that tuberculosis in adults is diagnosed by means of tuberculin. I think that the danger of producing such films is past.

The second general set of standards covers photography, acting, lighting, the

physical condition of films, and similar points.

Photography has greatly improved in the last ten years, and the public has come to demand good photography. The public has been educated by seeing the excellent photography in commercial films, and it is the best judge now.

The same is to be said of lighting. I think the lighting in the production of a film is just as important as photography. We perhaps can try to get away from poor lighting by being more liberal in paying for the production of a film. There was a society in England which recently produced a film on venereal disease for a few hundred dollars. They did everything possible to make this film as cheap as possible. The result was, they had very poor lighting. The faces of the actors were very often black, and the whole result of a fairly good story with valuable points on venereal diseases was lost to a large extent.

Then there is the matter of acting. We should try to avoid employing amateur actors. There is one film I know of that has been shown a great deal during the last two or three years in which one of the principal characters was an amateur and the results were laughable. Of course, we must make sure if possible, that doctors take the part of doctors; the same is true of nurses or other technicians. They are natural actors in their particular field. We can use them for their particular parts, and have actors for the purely histrionic roles.

In passing upon health films, who should be the judge? If you submit pictures to some doctors, they are likely to object to some points which they are not agreed upon, and condemn the film, or they lose sight of the purpose of the film. I know of a film on tuberculosis that gives a rough sketch of the general points of a medical examination for tuberculosis. Unfortunately, when they made the film, they could not get a medical man to do the actual work, but they had an actor who was coached by doctors. As far as the public was concerned, they learned what the principal points of an examination for tuberculosis consisted of. However, a group of doctors saw that film, and they said, "Why we can see right away that that actor is not a doctor," and they condemned the film. They should not lose sight of the main purpose for which the film was made.

In my opinion there should be a central group under some such organization as the American Public Health Association or the National Health Council, composed of health workers who have had sufficient experience with motion-picture films to realize the difficulties and possibilities, and who can call upon experts in various fields to help them in judging the technical accuracy of the films. This group should be a clearing house of information on health films. It should advise health agencies in regard to methods to be employed and should have an intimate contact with the entire motion-picture industry.

CARLYLE ELLIS

New York City

Apparently, we are all agreed that standards are necessary, and that the standards should be a good deal higher than they are to-day. It seems to me that there is a question which we can ask of all films of any kind, that will help to set this standard. It is almost the primary question: Does the film clearly, truthfully and interestingly set forth an idea worth presenting? If it does, it is worth showing. As a producer, I don't believe that poor photography is excusable, or poor lighting is excusable, or that films in bad physical condition should be issued, but I might permit all of those if I could insure the primary requirement that the film show an idea clearly, truthfully, which is to say with technical accuracy, and so that it will interest people.

I am going to cite to you two rules that I think should be held in mind by those who are using films, as well as by the producer. These rules are primary and apply to any kind of a film or any dramatic presentation. The first rule has already been emphasized. It is to state one thing at a time and let it relate to the preceding fact, enlarging it and enriching it, and let each fact relate to a main theme, which you should have clearly in mind. That is about the simplest rule for dramatic construction of any kind that we can get to. The second rule is that if there is opposition of ideas, such for example as the right and effective way to do a thing, and a bad way, placed consecutively in contrast to each other, it increases the interest, and this dramatization, however simple it is, increases the conviction carried by the facts. After all, I do not believe that even in our technical health work the mere cold statement of facts is all that we require. We should be able to state our facts with conviction, because the emotional response, even in instructional work, is an important element in education, and however technical our audience, the color of contrasts is of value. Of course that can be carried on to the point where we have what is known as a drama, that is, a story or narrative.

My other thought is for singleness of purpose in the making of a film. Diffuseness has probably destroyed the value of more motion pictures than any other one quality. I know it has spoiled films of my own when I was not morally courageous enough to fight for what I knew to be necessary. The singleness of purpose, the sticking to a single theme, is important. Diffuseness weakens your element of conviction. It weakens the force of your facts, and that of course is true of any big drama as well as of a film primarily educational.

One thing that the producer finds in so many clients is a belief that he can get their entire program into a single film. This department must be represented, and that activity must be represented, and the whole country. There are so many things that they know are useful and excellent that they try to get them all in. But they must sacrifice some things for the sake of force and clarity. I think that is the basis of it all, that we must have singleness of purpose and hew to the line on that.

I have already said that there are certain mechanical elements which should go without saying. Poor photography, I say to you as a producer, is inexcusable. The film now on the market is of the highest quality. The cameras are quite adequate, and poor photography merely means that inefficient people have been put on a job.

The question of titles has been touched on, and I can merely repeat that there is no excuse for either ill-spelled or ungrammatical titles. Prosy titles are the death of a great many films. Boiling down to definite essentials is hard editorial work. That is work that should not be required of the person ordering the film. It should be required of the producer. That is his job and he ought to have people who know how to do it. You should know how concisely you can have your titles made for the very important reason that the shorter the wording of your titles and the less space you spend in saying things, the more space you can spend, the more footage you have for picture statement. The ideal picture is one in which the greatest possible part of your story is stated in picture form. That is the fault of a great many technical films; especially of a great many health films. I have seen many films where page after page from text-books was quoted on the film until it was boring in the extreme.

As serviceable films made specifically to show a right idea in health become available, we won't have to use the so-called industrial film, the real purpose of which is to sell some article in trade.

Of course, it is a fine thing to have a rich manufacturer come along and say, "I will make a film for you. I will sell this perfectly good idea, and of course, I will mention my goods in it." The mentioning of the goods need not be harmful and may not be a bad thing to do, but it is almost inevitable that he will put the accent somewhere outside of the bull's-eye, and in the making of a health film especially, the accent should be on the bull's-eye and not on the man's goods. So let us all hope that the time is coming when we won't have to use an industrial film to teach a health lesson. In the meantime, we should not reject them, but we must decide each particular case on its merits and help to raise the existing standards by earnestly seeking and using the best films to be had.

QUESTION III

"What are the needs in health motion pictures that are not met at present?"

DR. ERNST C. MEYER
International Health Board, New York City

It so happens that we have made one picture on the hookworm. I have been told that it sometimes makes the Southern cotton planters get the willies when they see it. It seems to be helping to do its work, but I have no particular credit in that; I am appearing before you as an utter layman.

I have seen many health films, a good many of them, and I have watched audiences that were seeing health films, and believe with most of you here, I suppose, that there is a great field for the health film, whether short or long.

I have a feeling, however, that one phase of the production may have been neglected to a certain degree, and that is the cartoon film—the animated drawing. We, of course, know there are a good many films now that contain animated drawings. The American Social Hygiene Association has been one of its most extensive users, and to great advantage. I recently saw a picture on "How Life Begins" in which the animated drawings are a very essential part of the film and without them a great deal of value would be lost.

I want to call your attention to the possibilities of the cartoon film, the animated-drawing film, because it seems to meet certain requirements that are difficult to get in any other way. For one thing, you can have it produced at any time, at any place, under all conditions of weather, provided you have the information you want to embody in the film and you have the artist who can draw your pictures. Having those two things, you can go ahead and get your film at once.

Another thing, you know pretty well what it is going to cost you. The prices vary from two and a half to six dollars a foot and sometimes more according to the complexity of the scenes. By sketching the plan you have in mind, the subject you wish to cover, you can get a very accurate estimate of the cost of the film in advance.

Now another advantage, and it is a considerable one, in view of the quality of some of the amateur films that are out on the market, is the character of the lighting. The technical side of the cartoon film is always perfect. Many amateur films depending on photography under ordinary conditions of light show up poorly. Those conditions never exist in the case of the cartoon film. It is always clear and sharp.

Now there are a few disadvantages. There always are. For one thing, if the artist overdraws the thing he is trying to show, he may burlesque it for you, and instead of getting your lesson across, he will get the people to laugh at the thing, which might be amusing but does not accomplish what you have in mind. And another serious one is the fact that an animated drawing, being just an artificial

creation, is not convincing. It is a fake, and being a fake, it is sometimes difficult to prove to the unsuspecting person who sees the picture that this wonderful thing can really happen in nature.

Now if you can say, "This thing actually happened just that way in nature and here is the photograph of it," it is apt to be more convincing.

H. E. KLEINSCHMIDT, M. D.

American Social Hygiene Association, New York City

If I may hang over from the previous subject, I'd like to say just a word or two on "Who shall make the motion picture, the health worker or the professional motion-picture man?" It is a question sometimes. As has been said before, it is difficult frequently for the professional motion-picture man to get the viewpoint of the health worker. So far as our work in the American Social Hygiene Association is concerned, we have found it more successful to study the motion-picture man's methods, to learn some of his tricks, and apply them ourselves. In other words, put the health work foremost and the motion-picture technique in second place. This plan has not always been successful and some of our experiments have failed dismally. On the other hand, we have learned much and we have succeeded fairly well with other pictures.

After all, the making of motion pictures is not so very complicated, and with the assistance of a good technician, I think the health worker can succeed in producing good pictures. Necessity is the mother of invention and it was necessity which led us to enter the field of making motion pictures. It was during the war when the lecturers were trying to reach the soldiers and tell them something about the dangers of venereal diseases. Charts did not do it, and lectures did not do it, and so we resorted to the animated diagram and produced a picture called "Venereal Diseases," which was used in the army and the navy. As time went on, we gained more experience and improved somewhat on the technique.

The commercial producer and distributor have felt that there must be something in the picture to carry it over to the people—in other words, a story or drama. I don't think that is necessary. I think that we can make successful educational motion pictures devoid of all dramatic appeal.

A text-book is not always the most interesting thing to read, but it carries more information than does the novel, and so we have confined ourselves, not entirely, but almost exclusively to the instructional educational motion picture. The pictures which we have are scientific in nature, very simple, and consist largely of animated diagrams. Health workers make a mistake, I think, when they attempt to make a picture interesting and true, and then resort to the arts of the dramatists to put the story over. Personally, I believe that an instructional educational picture can be produced which will be interesting and informative as well. And even though it does not draw the crowds, even if it does not attract everybody, that does not prove that the picture is not a success.

I wish to reiterate what the previous speaker said about animated diagrams. We find them most successful. One thing he did not mention, and that was the factor of simplicity in an animated diagram. With an animated diagram one should leave out all extraneous matter. That cannot always be done in photography. In conveying an idea of physiology or pathology it is quite essential to remove the details which confuse the person who sees the picture. So the keynote of success in making an animated diagram, I think, is simplicity.

Is the animated diagram a "fake?" I hardly think it is, because it is perfectly obvious that these pictures are frankly schematic. There is no attempt to make them lifelike or realistic. It is

like an architect drawing his plans, like one making a rough sketch. There is no deception involved and I think that the average person will not be swayed by the fact that these are not taken from actual life.

After all, the motion-picture public is "wise" to fakery. Conversely, some of the pictures that seem very realistic and true to life we know to be fakes, and the audience knows it.

One difficulty about the animated diagram which we have experienced is that of translating them for foreign countries. Frequently, we are called upon to supply our films for other countries with Spanish, French, or Russian titles. The subtitles can be translated very easily, but the titles of the animated diagrams are incorporated into the picture itself, and of course, once made, they cannot be changed.

I might say further that most of the pictures which our Association has produced are not intended to be self-explanatory. I don't know whether that point has been touched upon before or not. A picture circulating through the ordinary commercial channels must be self-explanatory, but we depend, more or less, upon having a competent speaker to explain the picture, and it is most helpful to have some one who can give an introduction and fill in the intervals between the reels.

QUESTION IV

"How can health departments and health organizations work together to have suitable pictures produced?"

P. P. JACOBS, PH. D.

National Tuberculosis Association, New York City

Health associations and health departments can coöperate, first of all, in producing pictures by jointly pooling their cash, and secondly they can coöperate by jointly pooling their information. The question boils itself down in the first place to, "How much money do you have?" The very fact that not one of the motion picture producers who sits before me, that none of the motion-picture producers in New York or anywhere else in the United States is willing on his own risk and with his own money to produce health motion pictures and put them on the market for distribution, is self-sufficient proof that there is no money in producing health pictures.

It stands to reason, therefore, that somebody, some good friends of the health-picture proposition have to dig down in their pockets and produce pictures on a non-paying basis, just as the National Tuberculosis Association has done, for example. We have produced pictures not with any idea of making money, but simply with the idea of getting back what we put in them.

The producer could not afford to do that. He would go out of business in two weeks if he attempted to do it. Now that is the very proposition that we are confronted with. They don't say, "Come on, sure, we will produce a picture. Here is your subject. You just tell us what you want to do and we will put our money into it and when we are through, we will give you the full benefit of it." Not at all. I never saw any producer do that, and if you ever heard of one, please let him step forward immediately and take me by the hand.

Now, then, in the very nature of the case it means that if health associations and health departments are interested at all in a proposition of this sort, if they are going to coöperate in the actual production of motion pictures, they have to pool their cash. If they are

going to coöperate in seeing that somebody else produces it, they will either have to pool their cash or guarantee the producer a market for a minimum number of prints. That is the only way he gets his money out. The man who invests his money in a picture has to see a market for a minimum number of prints before he goes ahead and produces a film.

Now the average producer of motion pictures who produces them for theatrical purposes is interested in making pictures, because he has to make a living out of it and pay the dividends to his company also. A few years ago, we went to the Universal, and presented to them a very interesting story. They produced it in four reels. They said to us, "You get in behind us and push this picture," and we did. But the difficulty was that having put their money in it, they distorted the picture out of all reason, and so it was an atrocious production when they got through with it. It was something that we really could not crow about very loudly, and we were glad when it was worn out. In other words, the theatrical picture producer, who produces for a string of theaters or for a regular series of releases, has to get a picture that will appeal to the public. He says to you, "I am giving the public what it wants," and what the public wants, in his estimation, is the jazz type of picture or the sentimental drama with the sob scenes that you see on the ordinary motion-picture screen every day in the week. That is the kind of thing that he thinks he has to get over for you, and if he accepts a story from you, he will distort the educational part, as I said before, out of all reason.

On the other hand, you go to the average commercial producer of industrial pictures, so-called, the fellow who is not in the theatrical game, and he is producing primarily for non-theatrical houses. The only way in which he can produce it is for you to give him a cash guarantee or pay him a stipulated sum or guarantee to buy or to sell for him a certain number of prints. That is the only way in which you can get a picture taken of that sort.

That simply means, then, as I said before, that you have to pool your resources of cash, and then, also you have to pool your resources of information and your resources of wit in the preparation of a story. The average motion-picture scenario writer has about as much knowledge of tuberculosis as an ordinary bedbug. You take him into your office and you load him down with a lot of books. You talk to him until you are blue in the face and finally, he gets some conception of what you are trying to drive at and he prepares a synopsis of some sort of a story. Then you have to pick it to pieces painstakingly until you rewrite it and get something that you want. Now it takes some combined wit to do that kind of thing, and so the health departments and tuberculosis associations can get together and work to good advantage.

I have had some experience with folks who have tried to produce motion pictures in a way that they ought not to be produced, and I am fully convinced that it pays to put plenty of money into motion pictures. I believe that the principal reason why health pictures have not been a success is because we have been too stingy in our investment. We have tried to produce pictures with limited sums of money when we ought never to have attempted it. We have been just as guilty in the National Tuberculosis Association as anybody else in the field and probably more so, if I may say it.

If there are six or eight organizations that would like to get a picture on tuberculosis, or let us say, a picture on periodic medical examinations, probably the best way to work out a plan would be for some particular individual or organization to prepare the story or a scenario or a synopsis of a scenario and submit it to all those that might be interested, with

an estimate as to what it would cost. Say it would cost five thousand dollars; then all of the organizations would chip together in a common pot to produce the picture. That is about the only way I see that it can be done.

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SYMPOSIUM ON HOW TO FURTHER PROGRESS IN HEALTH EDUCATION AND PUBLICITY

Including the principal discussions given at the second session of the Health Education and Publicity Group, Fiftieth Annual Meeting, American Public Health Association, New York City, November 15, 1921

INTRODUCTORY REMARKS

E. G. ROUTZAHN, *Chairman*

Department of Surveys and Exhibits, Russell Sage Foundation, New York City

The aim of the discussion is to set before us some of the problems of health workers in carrying information about health to the public and persuading them to accept it. This discussion looks forward to further meetings, when practical solutions to some of these problems will be proposed. In the meantime it seems worth while devoting a session to laying the groundwork by talking over what some of these problems are.

In nearly all the ratings for health departments that have been worked out, eight to ten points are allowed for health education, but in nearly all the schools that train for public-health work, not a point, and scarcely an hour are given to the subject of health education. In other words, we have not as yet really thought about this very large section of the public-health job as requiring observation and study.

This meeting has been planned somewhat as an introduction to the study of educational methods. With that idea in mind, it has been divided into four parts. The first has as its topic: What has been done in studying publicity methods? There seems to be a possibility of real suggestion and inspiration for all of us in seeing what has already been accomplished, what steps are being taken by some of the health organizations in testing and evaluating their publicity and education.

The second part will consist of examples and questions that will bring before us some of the problems that the members of this group especially wished to have solved. We shall be very careful not to waste any of our time now in telling how any one of us has solved or believes he has solved these problems. Our purpose is to have spread before us the problems themselves.

The third part takes up the possibility of utilizing the coming months for more detailed scrutiny of our methods and materials with a view to getting at some of the principles and practices which should guide us in planning publicity programs.

The fourth part which naturally follows this question is a consideration of the practical next steps in providing means for further study and discussion by those who believe that the subject deserves and requires such study.

QUESTION I

"What is being done to study methods in health education and publicity for adults and children?"

PSYCHOLOGICAL TESTS OF MOTION PICTURES AND PAMPHLETS

W. F. SNOW, M.D.

American Social Hygiene Association, New York City

It happened during the period of the war that I had occasion, on behalf of the Surgeon-General of the Army, to ask many experienced persons how they would go about conveying an idea, or an ideal, if you please, of physical fitness, to the men who were being drafted for service in the army.

Some of these were the advertising managers of newspapers; others were the billboard men of the country; others were the men who used other kinds of publicity, paid publicity in every sort of business enterprise—and they said, "Well, the first thing we suggest is that you scrap all your present methods of publicity."

We said, "That's fine; we are willing, but what would you put in place of it?"

They were not so ready with the second answer, and, when they had studied the material that the public-health departments and agencies had put together, they became a little less certain that we should scrap all of it. But we all came to question whether we knew what would influence the men. Out of that experience came, among other things, a committee with Professor Adolph Meyer of Johns Hopkins, Professor John B. Watson, and other psychiatrists and psychologists, to make a plan of study of motion pictures for the army in relation to the program against venereal diseases. That study was elaborated somewhat and included a study of other films among which was a film for women.

There is not time to describe the detail of how they studied this material, but the report has been printed and may be obtained by writing to the American Social Hygiene Association for it. This committee says in its report that only two important after effects upon behavior have been demonstrated from the study of these films. A few individuals are stimulated to active interest in sex hygiene campaigns and some seek to get repeated showings of the films or to obtain pamphlets or other propaganda material. They seem to be, for the most part, individuals who are already interested in the problem but who see in the performance an opening wedge for further work. A small number of men, in the belief that they may be infected, seek medical advice. The number of those that we were able to trace amounts to about one per cent of the total male audience. The retention tests show that the main facts—this is specifically in relation to the film "Fit to Fight," which many of you have seen—were remembered very well for periods up to five months, but there is no indication that behavior is modified significantly. The picture does not reduce the exposed rate of men who see it or make them more careful in the use of prophylaxis, except possibly for a few days. Nor did ill effects seem to persist to any greater extent. Interest dies out rapidly and the pictures seem to be forgotten as quickly as the average motion picture seen wholly for amusement.

Now, the statement I have made to you is taken from a psychologist's observations carried over two years' time, following up those men who saw the picture. The statement further reads that, while the dramatic portions of it do no active harm, it is doubtful whether they contribute to its educational value or add to its interest. Indirectly they cut down the space that can be devoted to informational topics and limit the informative value of the picture. There is a need for more comprehensive instruction than ap-

pears in this film. What I have given you illustrates the types of opinion that came out of these careful studies. The committee is still going on with its work.

The National Committee for Mental Hygiene published in a pamphlet, which you may also obtain by writing the Committee, the opinions of a large number of psychologists and psychiatrists in regard to the usefulness of the motion picture material, not only of the dramatic films, but of so-called educational films. I think it is at once apparent in reading these opinions that there is really no consensus of opinion, at least among the psychologists and psychiatrists on this point. There is a variance of opinion from the greatest pessimism to the greatest optimism in regard to the use of these films, and, consequently, that simply accents the need for a careful, methodical study of the influence of our various methods of so-called educational or informational-educational work and publicity.

Now, another committee which we have appointed which has been in operation for over a year comprises Professor Woodworth and other psychologists here at Columbia University, with representatives from other institutions. They have undertaken to evaluate the existing printed pamphlet material which is being circulated in combating venereal diseases and promoting the general social-hygiene campaign. That committee has not completed its report, but again indications are that somewhat the same findings will be made—that there is a definite memory retention period with most people and that, beyond that, the impression has to be repeated in some way or else its value has largely been lost except as a matter of providing some information for the individual.

I saw in the first days after the earthquake in San Francisco an illustration of what is meant by these psychologists. After the fire had swept over the city there were all sorts of hanging walls just about ready to drop. A rope was put up around these dangerous places and a sign warned people to "Go around this rope." For a few days everybody followed the rope. But after a week, the walls not having fallen, people became so intent on their business that they began to go under the ropes and under the walls and took their chances. They knew that the walls were unsafe, but they didn't pay any attention to the warnings. Once in a while a wall fell and somebody was hurt. Now, we see instances of that again and again. We begin to forget after a while the impression which is made on us and the importance of applying the information. We still have this information, but we are not applying it. That seems to be the thing that comes out of those studies.

There is not sufficient time for me to present the preliminary findings with regard to this study of pamphlet material, but it is encouraging to hear what this group of psychologists say. The excerpt to which I have reference states that a general inspection of the mass of data at hand has not revealed thus far any startling discoveries calling for radical changes in the pamphlet form of promoting sex hygiene and sex education. It gives promise rather of furnishing further evidence that the pamphlets filled certain needs and that they can accomplish their purpose in some measure. Whether the purposes they aim to accomplish are the ones best suited to the individual and social welfare is beyond the scope of this study.

In other words, the propaganda side of the work is not what we were after in these studies. We were trying to find out in this study and in some others we have started what ideas our publicity material conveys to the public. I am convinced from watching these studies, covering a period of three years, that it is just as possible, if we go at it carefully and scientifically, to evaluate what we are doing for the public through the printed word, the lantern slide and the moving

picture, as it is to find out what we are doing in classroom work, the laboratory and demonstration. But it is going to take study far beyond what has been done heretofore.

In the meantime, it seems every pamphlet and every motion picture we put out ought to be put out with the thought that it is experimental material which we are ready to scrap after making the investment the minute we can get the scientific information on which we can base a better program.

A STUDY OF METHODS OF CHILD WELFARE EDUCATION

COURTENAY DINWIDDIE
National Child Health Council, Washington, D. C.

The approach of the National Child Health Council to the question of health education and publicity is from a slightly different angle than that of some other organizations, in that it is mainly from the point of view of coördination.

Our most important advisory committee has been that on health education of school children. This committee has, in addition to the representatives of the three outstanding government departments, the Children's Bureau, the Public Health Service, and the Bureau of Education, delegates from fourteen other organizations, national in scope, and very directly concerning themselves either as their main effort or in some department, with the health of school children. In addition to that, outstanding educators and health experts who have thought in terms of education have been called in. Altogether, the committee includes practically thirty people qualified to speak in the field of health education of school children. That committee has organized and has been at work for a few months now, and while it is still in infancy, it has done some things which make us hopeful that it will be useful.

The first consideration of the committee was to adopt a platform. We found that there were many approaches to the subject—that of the nurse, the physician, the physical training teacher, the health lecturer, the general educators, and so on. The committee, therefore, proceeded to outline a statement of the principles that underlie any program of health education. I am not at liberty to give that statement as yet, because it is not ready for publication, but the committee has tentatively agreed upon such fundamental principles, and the very fact of that agreement, it seems to me, is one of the most hopeful things about it.

In addition to that, it has formed into various sub-committees that are at work on particular phases of the question. One committee is writing a statement on the various methods used in health teaching, dealing with the graphic and dramatic devices, the project method and other methods used by people who are expert in such matters. Another deals with the question of organization and administration, and that committee is actively at work on drawing an outline of the types of work that should be done in the schools, the organization that should be necessary to carry them out, and the correlation that should exist between the different parts of that organization and between the individuals in its personnel. Another on "Subject Matter" with Dr. Burnham as the chairman is engaged in preparing a statement, not of details, not of hard and fast curriculum, but of the subject matter in general terms that should be covered in any comprehensive and balanced program. Those committees, as I have said, have just begun to work. We feel encouraged in that their work so far has been more or less unanimous in its agreement.

A word as to the application of what the committees may do.

We have felt that, in addition to gathering together the opinions and experiences of various organizations and persons it was well to see that those opinions and experiences were made available in a practical way, and it is the intention of

organizations which are in the National Child Health Council to use the experience and advice of these committees in their actual field programs. The Council also wishes to see that they are made available to anyone else. They are working in the closest possible relation with the government departments. Again the health demonstration to be held in Mansfield, Ohio, the organization of which is now actively under way, will have the closest possible relationship to this body of consultants from whom we are drawing a wealth of past experience and of present knowledge.

One thing that has most impressed the members of the advisory committee of the Council is the fact that they are not drawing up a purely theoretical program to be either sent out in the mails or filed away, but that they are drawing up certain suggestions which will be offered where they will be tested by actual experience and in the light of conditions as they exist. The committee will look to Dr. Brown, the director of the demonstration, and to anyone who is engaged in practical field work, to see how far the principles that they may draw up do actually work out, to give them the "acid test" of real use.

THE EVALUATION OF PUBLIC HEALTH EDUCATION

W. L. DEALEY, PH.D.
U. S. Public Health Service, Washington, D. C.

Under the war impetus, public-health education to limit venereal diseases was initiated on a scale reaching millions of persons. The U. S. Public Health Service is now trying to evaluate this educational work in as exact social, psychological and medical terms as possible. As much forethought should be put into this evaluation as goes into carrying the campaign ahead. This evaluation of our educational work is itself educational. It becomes a systematic follow-up to combat the public's "curve of forgetting."

For example, after a social-hygiene field truck had toured five North Carolina counties, with a uniformed lecturer, motion pictures and literature, 3,000 questionnaires were sent into those districts. Replies were striking in the sense that the people themselves actually advised follow-up; they wanted the field car in other counties, and in their county at regular intervals. They wanted better advance publicity next time. From eighty to ninety per cent of them said venereal diseases had been more seriously and freely discussed since.

When these folks sat down and wrote the Public Health Service via its questionnaire, they became an active part of the program to limit venereal diseases. They identified themselves with it. In the same way with the social-hygiene talk, audiences of North Carolina men have regularly answered a short questionnaire before leaving. In the first 900 replies tabulated, 40 per cent say they have had gonorrhea; a third of these tell of no treatment by physicians; a third definitely say they had intercourse before the infection cleared. These and other interesting facts sharpen the educational work by picturing the exact situation.

Our most extensive questionnaire study is to focus on our card exhibits for boys and girls. This questionnaire will cause the boy to recall points stressed in the exhibit and express this through a manual motor response. Through his answers he will also analyze his own social and "substitution" interests. Tabulation of a more detailed schedule among 1,000 North Carolina boys, in coöperation with the Service, is for all purposes complete.

For a preliminary evaluation of posters, car cards and newspaper advertisements, the division is asking the assistance of advertising experts.

There are also advantages in using direct visits by volunteer workers. In the District of Columbia members of a recent institute on venereal disease con-

trol volunteered to visit the homes of one thousand mothers who have received pamphlets. This systematic follow-up with a printed schedule enlists in the ranks of public-health workers women who otherwise might hold merely an academic interest. For the sake of this result, the Public Health Service is glad to sacrifice the increased scientific accuracy which comes with using trained field workers. Denver women have volunteered to make a similar study.

The division is also conducting studies to provide more accurate facts for popularization in the form of a single keyed sheet spread broadcast through the mails. Mortality statistics for syphilis, for example, have remained so far behind medical advances that hardly more than seven thousand deaths a year are certified. Through a highly selected group of practitioners and pathologists the Service is preparing estimates of the extent to which syphilis is camouflaged under forty-five other causes of death. These will indicate that the true mortality is nearer seventy thousand deaths and tell in an authoritative way the relentless killing power of syphilis.

The educational effects of such researches begin at home upon the public-health movement personnel itself. Thus the educational stimulus of our questionnaires to all hospitals and prisons, asking the medical officers just what provision they make for venereal disease cases, routine Wassermanns and accurate records, may be roughly measured by comparison with the same questionnaires sent out a year from now.

Furthermore, in line with present activity in index numbers in the economic field, the division is building up indices of progress-statistics to show any decreases in acute cases in proportion to chronic cases; number of physicians reporting; laboratory examinations in proportion to positive Wassermann results. By showing the trend from year to year, such indices will measure very roughly our entire propaganda.

It is now the policy of our division to key all publicity material, where possible, in order that the response in terms of pamphlets written for can be statistically treated at odd moments. If all public-health workers would key their publicity material, where possible, evaluation would become automatic in many cases. It would move away from naive averages, to a freer use of modes, standard deviations, index numbers and regression coefficients, thus becoming more systematic and purposeful.

One other factor is involved, the coöperation of the research men in universities that already use these methods, the professors of advertising, of educational measurement, of psychology, of social sciences, with their graduate students ready to devote three interested years to one single problem.

In conclusion, educational research or evaluation is a functional thing. It frequently becomes educational follow-up in the best sense of learning by doing.

THE HEALTH FIELD USED AS A LABORATORY IN A STUDY OF PUBLICITY METHODS

MARY SWAIN ROUTZAHN
Russell Sage Foundation, New York City

The Department of Surveys and Exhibits is interested in the problem of bringing to the attention of social organizations information as to how social agencies can best present to the public the subjects they wish them to understand and how they can obtain a response to their propaganda.

In connection with that interest, we have been making a study in which we have used the health field as a laboratory, believing that the health organizations have made a great deal of progress in working out methods of making information interesting to the public.

Our interest has been primarily in the

publicity work that has been done with such objectives as raising money, getting legislation passed, modifying and forming opinion on particular questions, and modifying behavior, especially in the matter of health habits.

As that is a pretty broad field, we have been concerned with various ways of limiting it. In the first place, our study has concerned itself with the education of the adult. We have felt that the problem of teaching health to children in the schools is a question by itself and apart. We have been interested in the use of the various avenues for reaching grown people with whom there is no easy contact as there is with children in the school. We have also omitted to consider what was not within our province—the instruction given personally by the physician and the nurse to the patient.

From the whole field of public health we have selected for more special study three campaigns in which the education of the public has played an important part. Those were the campaigns against tuberculosis, infant mortality, and venereal disease. In this connection we have attempted to find out as fully as we could what current work and what recent work the national organizations concerned with these movements were carrying on, and how they were doing it. Because the country is pretty large, in the matter of state work and in the matter of local work we have made selections of particular state health departments and state health organizations, and in the same way city and county groups to visit, for obtaining some detailed information as to how the work was being carried on.

We have grouped the various forms of publicity under the three general headings of publication, graphic material and events, and have attempted to see how health organizations were reaching their public through each of these methods.

We have been particularly interested in finding any illustrations of what, for want of a better term, we have called the publicity project—to find the health organization in a city or in a state, or nationally, that is seeking to get over a particular idea, making a special problem of seeing that idea through until there is a reasonable certainty that it has made an impression on at least some one section of the public—a section that can be identified. Both Dr. Snow and Dr. Dealey referred to the great problem of follow-up, and the rapid downward "curve of forgetting." Planned education takes these factors into account.

An example of such a project has been the rural sanitation campaigns that were conducted in the South in which the objective—or, at least, one of the objectives—was that farmers should build sanitary privies. The educational work in each community continued until there was an actual count of the construction work that was its outcome.

We have also been gathering information on the question of how the job is and should be done. Who does the work of interpreting the health message to the public; where are properly equipped persons to be found; how are they trained and what are they accomplishing? Is it of primary importance that the person who interprets health to the public should thoroughly understand the subject matter, or is it of chief importance that he should understand how to make information interesting and what are the avenues to use? Is it practicable of a person of the latter type to work under the supervision of somebody who will make sure that the viewpoint and statements of fact that he gives out are correct? These are some of the questions that we have been asking of health workers.

Finally, we have sought experiences and opinions of health workers on the practicability of finding out what are the results of any particular piece of publicity. Can we evaluate our publicity work and so find out whether our methods are sound and that we are going in the right direction? Dr. Snow and Dr. Dealey have already given accounts of a few experiments in that direction.

QUESTION II

"What are some of the problems to be solved?"

WHAT SHOULD BE THE POLICY OF THE MONTHLY HEALTH BULLETIN?

B. R. RICKARDS

New York State Department of Health, Albany, New York

A survey of the monthly health bulletins of the various states and cities shows almost as many different policies as there are editors. Many of the bulletins are supposed to be for popular consumption, while others are addressed to public-health workers only.

As a matter of fact, do those monthly bulletins which are addressed to the public reach the general public? I do not believe they do.

In the case of New York state we have about five million people outside of Greater New York; our jurisdiction does not extend into New York City. At the present time the *Health News* has a circulation of nineteen thousand; it is sent very largely to public-health workers or those interested in some way in public health. Health officers, public-health nurses, nurses, physicians, registrars, representatives of voluntary organizations, libraries, and principals of schools make up a large part of the nineteen thousand circulation. It aims to supply the public-health worker with the latest information on all matters pertaining to his work, and by suitable articles, properly presented, it should seek to interest him in passing on the information to that portion of the public with which he comes in contact. To endeavor to have our health bulletins reach the public directly is hopeless on account of the excessive cost.

In order to find out whether a symposium or diversified articles were most desired, a questionnaire was recently sent out to the readers of the New York state *Health News*. About 95 per cent responded in favor of the symposium.

Notes from the field should form a part of every health bulletin, for by this means it is possible to let the worker who is isolated from his fellows know what is going on elsewhere along similar lines.

MARIE L. ROSE

Child Health Organization of America, New York City

My feeling is that one of the biggest problems is how to make health literature catch the reader. The need for literature and the demand for it is tremendous. The pressure that is being brought to bear on our organization is only part of the pressure that doubtless every organization doing similar work is feeling. We have many organizations preparing literature, but we find that this literature is not reaching the group that needs most to be reached—that there are certain groups that are practically untouched.

In considering the kind of literature that should be prepared, it would seem to me, first of all, that we must think in very simple terms. You will find in various parts of the country how weary people are with the tremendous amount of work they already have on their shoulders, and if we can get our point across quickly and very simply so that the mind and the eye, in the presentation of actual material, is not wearied or bored, it seems to me we have made great progress. In other words, the simplicity of the material, the form in which it is presented, seems most important. More than that, to stimulate the creative minds that surround us is important, too.

SOME PROBLEMS AS STATED FROM THE FLOOR

How are we going to get false information out of people's minds?

How can we see that speakers sent out to talk on health will not give incorrect information that health workers will later have to undo?

How can we reach the 97 per cent of the midwives who are too ignorant to attend classes?

How can we get other social agencies who reach individual people to be better informed on public health?

How can we develop a hygienic conscience in the school child?

How are we going to reach the teacher so that she may reach the child?

How are we going to teach people to be interested in learning about health without frightening them about sickness?

How are we to control the newspapers so that they will not quote information wrongly?

QUESTION III

"What can be done coöperatively during this year to study methods and materials?"

LAWRENCE MARCUS

National Health Council, New York City

I will merely state the problem and invite you all to consider methods of solving it and, in the course of the coming year, to help bring together the single straws to build up our structure.

A problem that I feel would have the interest of nearly every health officer here can be stated in this one sentence, "What can we do to interest business men in public health?" That is a very large assignment; in inelegant language it would be a "whale" of an assignment.

I have proposals as to procedure, at least for the first two or three steps. Others will suggest improvements, I know. I want to suggest that every health officer interested in this problem should participate in a study of it by carefully recording every step that is taken by him or her for the above purpose, that is, to interest business men in public health. If a health officer in California, for instance, has a problem in the course of his daily routine which brings him in contact with the business man at any point, will that health officer send to some central place which a committee can select copies of memoranda, rough drafts of the plan for getting at the business man, copies of speeches, newspaper clippings, anything which deals with the problem of touching the business man at any point and telling him about public health? Additional things that might be done in order to round out the tasks that each person here can assume for himself include the filing of samples of all form letters, printed matter, newspaper articles and the like. The committee would be glad to get addresses which bring out a technique for selling the business men the idea of public health.

Beyond that, the hope of a few of those who are interested is that next year we may have material collected which we may present to the American Public Health Association or any group that is most interested in the problem, together with a few tentative conclusions. I am thinking of the business men as a small group on whom we can swoop down, concentrating on them as a genuine example of what might be done with a group providing we approach a problem scientifically. The National Health Council, with the National Tuberculosis Association, has undertaken a campaign of educating the business men. We have got it down finer still—not only the business men, but the Rotarians, usually the prominent business men in each community. We are trying to sell to the Rotarians a "health week." That is a specific activity on which we may hope to have some sort of a specific report next year if you think kindly of this proposition. We are at present putting over a Rotary Health Week nationally. We are trying to "sell"—we are talking in the language of the business man because

we are thinking of the business man—we are trying to "sell" the business man a health week. He has to have the coöperation, as far as he can get it, of the health officers of the community. There is a specific proposition that has been started, and, with everybody putting his shoulders to the wheel, it may be made specific enough so that next year we may have some report.

QUESTION IV

"What can be done at the next convention to advance efficient work in health education and publicity?"

W. A. EVANS, M.D.

Chicago Tribune, Chicago, Illinois

The question is: "Shall there be a Section on Publicity and Education?" The difficulty lies in this, that there are more sections now than the finances of the Association will permit. Publishing the proceedings of the sections that we now have is proving difficult from the financial standpoint.

The Association has not seen fit to raise its dues; most associations have. We are finding great difficulty in living on the five dollar dues. That was a before-the-war due and it is about the only thing in America that is still on an ante-war basis.

Again it is not advantageous to divide the membership into too many groups. However, the basis for the decision on that question is the attendance of the group. You have here, I am sure, an attendance averaging more than 150; by actual count it reached almost 170 on two occasions. You seem to be meeting that requirement.

Now, is there anything to be discussed? There is no question but that there is need for health officers to learn salesmanship. Your real purpose is in persuading the people to change their habits. That can't be done, save as it is "sold" to the individual. In the entire field of medicine—counting this as one of the fields of medicine—there is no division of the profession save this that is in any way interested in salesmanship. You are recruited largely from the ranks of doctors with an inherent opposition to everything savoring of salesmanship. Therefore, you are as ignorant—I am speaking now largely of the medical profession—of the principles of salesmanship, however wise you may be, as an unborn babe.

As I see it, there is great need for deliberation—"round table" discussion, if you please—on the technique of presentation.

Let me put this thought before you. If you decide a thing as being correct this year, it does not by any means follow that it will be the best way to present it the year after next. Last year I had the opportunity of seeing a health exposition in which there were shown a number of old methods of presentation that were exceedingly valuable and effective in the Chicago Health Department some ten years before, but were just as useless in 1921 as they were useful in 1910. In consequence, you have to be constantly revising your technique if you are to get results.

I believe that you should at least have another program, and my advice is that you arrange for a program for next year, and if you can demonstrate a continuing interest—for every now and then something is evanescent—you will have no difficulty in proving your right to a section in spite of the difficulties that need to be overcome.

I suggest that your officers-elect appoint some committees to work on technical matter. I assume that there is not much need for propaganda discussions before this group of people; the very fact that you are here proves that you do not

need propaganda work. You are a group of people that I think we can consider as having been properly awakened to the importance or need of that which you are undertaking to do. Therefore, why stir you up any further? But you do want to know how to do it and how not to do it. Therefore, I suggest to the continuing officers, whoever they may be, that they appoint some committees where you have a section to report upon the methods of doing things; how to do and how not to do, as well, perhaps, as what to do and what not to do, and therefore that when you come together next year you not only have somewhat more open and more general programs, but that somewhere in your scheme of organization, somewhere in your plans for the meeting, at least you have room for close discussion of technical details, discussion of means and methods, and deliberative discussion—if you please—what Lloyd George would call a considered answer rather than a vague statement as to conditions or as to methods.

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Social Service—a Profession.—Social service now has a professional organization in the American Association of Social Workers, 130 East 22nd street, New York City. Since the National Conference of Social Work in Milwaukee last spring the members of this Association, formerly the National Social Workers Exchange, have been developing a program similar in purpose to that of the American Medical Association, the American Bar Association and the engineering societies.

Between fifteen and thirty thousand people in the United States are engaged in some kind of professional social service. They represent a wide variety of fields, including public health, child hygiene, public-health nursing, tuberculosis control, social hygiene, mental hygiene, industrial hygiene, and various related fields; for social service in the modern sense has been developing with remarkable rapidity. In a draft of membership requirements recently prepared by the new Association's executive committee, nearly forty are enumerated in which men and women "trained in social science and technique are eligible for admission."

To qualify for senior membership, according to the proposals of the executive committee, one would have to be at least 25 years of age, a college graduate "or have demonstrated by his practical achievements an equivalent educational background" and have had four years' experience in social organizations of recognized standing. If he or she has had one or two years in a training school for social work, that would be equivalent to an equal amount of practical experience. Graduate work in social science is also made equal to one year of practical experience.

Provision is made for two other classes of members where the standards are less strict than for senior members. The junior membership is intended for the young man or woman with a year or more of experience, who is just beginning social work. The associate membership is intended for lay people who desire to coöperate in raising standards in social work.

To become a member according to these recommendations, each social worker would have to fill out an application blank giving his education, special training and professional experience. He would also give references to three members in good standing of the Association. These applications would then be passed on by a membership committee elected by the central council, and perhaps, also, by a local committee where a local council of the Association was organized. If the application was favorably passed, the social worker would become a full fledged member, receive *The Compass* and be entitled to all services.

REPORT OF COMMITTEE ON RETAIL DISTRIBUTION AND MARKETING OF FOODS

Read before the Food and Drugs Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 18, 1921

THE food supply of the nation is so intimately connected with the public welfare as to make its distribution and marketing of vital importance in the curriculum of public-health service. The subject may be considered from three standpoints: the commercial, the economic, and the sanitary.

The commercial phase will be considered only so far as it has significant bearing on the other two. The distribution should not be interrupted nor retail values enhanced through the undue use of money in cornering staple food products, excessive cold storage holding, limiting production and shipments, or in any way preventing a normal flow to the centers of consumption. Where there are interferences due to human agencies our influence should be exerted both with those having power to promulgate and enforce remedial legislation, and against those who consider too largely profit before necessity. The accusation of profiteering is, however, too generally applied to large food processors or distributors whose names appear on the labels, while too often the real culprits are hidden behind the walls of finance.

"The larger the output the lower the cost" applies as much to food production as to other industries. Statistical data recently gathered show that the large producers and processors receive something like 28 per cent less for their products than do the smaller producers who sell direct to consumers or to local markets. Yet it is the majority of such food producers and processors who give most satisfactory distributing service and whose business prospers. We recognize, however, that a small continuous margin of profit upon a large volume of business with a quick turnover may insure net profits which may be justly criticised, nor are such large food distributors immune from questionable combinations or deceptive labeling and packaging. Regarding the latter practices, relief is promised through a federal measure now pending before Congress.

Recent federal legislation providing for loans to farmers, the attitude of banking institutions and individuals of wealth in financing producers' marketing organizations, and the activities of the various units of the American Farm Bureau Federation clearly indicate that we should coöperate discriminately with those forces which are working for an increased and more economical production, and a more even distribution of foodstuffs.

However, in our efforts to find means to reduce the wide margin between what the producer receives and the cost to the consumer for staple food products, we should seriously consider the commercial phase before committing ourselves to any proposition for government control.

From the economical standpoint, data and information gathered lead to the conclusion that the relation between the health of the people and the ultimate cost of food to the consumer is not given the consideration that it warrants. The number of dietitional diseases caused and alleviated through the diet, the large percentage of malnutrition among school children and certain classes of adults, with the known results obtained by municipal organizations, point to the desirability of a more intelligent coördination of all agencies engaged in constructive work along these lines. We commend those municipalities, too few in number, which have proved the value of maintaining food centers in conserving the public health. Statistics show that they have materially lowered mortality rates. We point to the food center maintained by the Health Department of Brookline,

Massachusetts, as an illustration of how such agencies can increase the efficiency of health departments and coöperate with all welfare organizations, both official and nonofficial, in a community.*

In the distribution of food there are many wasteful practices which add to the cost. This follows from badly coördinated methods of transportation and marketing, trade rivalry, and lack of coöperation among commercial organizations and government agencies. Few of the larger municipalities undertake to exert any influence over the distribution of food other than in matters pertaining to sanitation. We have, however, found several municipalities where the granting of market stands and permits for meat and fish markets were based on the service to be rendered and prices to be charged the public. The advantages of such control through the permit system were pointed out in 1911, by Dr. William C. Woodward.†

A great agrarian organization, the American Farm Bureau Federation, which has been solidly organized in all but four states of the Union, with a membership of nearly 2,000,000, bids fair to solve many of the problems and prevent much of the waste so apparent to students of food economics. We see in this movement the hand of the business world backing up the farmers in their efforts to decrease the cost of food production and marketing. This assistance should result in an increased output and improved marketing conditions, thereby providing a more even distribution with lower cost to consumers. These business men are not lending their aid for any financial return they may obtain direct from farmers, but they realize that a sufficient and economical yield of soil products is vitally essential to the commercial and industrial prosperity of the country.

To illustrate the need for organized effort, we find that hundreds of carloads of celery, asparagus, apples, and other vegetables and fruit are shipped into the eastern markets from Florida, California, Oregon, and other states, in the midst of the New England harvest season for such products. Such procedure does not lessen the cost to consumers, as might be expected; on the contrary, it has discouraged the eastern farmer from supplying the local markets which he is in a position to do at a much lower cost. One of our Committee visited several eastern cities in January and found that about all the fruit stands and many of the markets were selling apples from Oregon. Knowing that the eastern states had produced a large crop, comparable in flavor and quality, he continued his investigations and found that local growers of apples were both storing and marketing inefficiently. Native apples had gone into the market as picked and brought small returns, while buyers, with a glutted market, had shipped to European countries. This condition did not result in affording consistently lower prices to the mass of consumers who purchase in small quantities.

The Committee commends the various women's organizations for the good work they are doing in eliminating waste and promoting efficiency and cleanliness in the distribution and marketing of food products. Not only are such organizations effecting corrections at food shops in communities where boards of health are inactive, but they reach the housewives, many of whom are obliged to practice the strictest economy in providing food for their families.

In many of the essential foods we find too great a difference between the cost of production and the cost to consumer. With wheat selling on the exchanges at $1.15 a bushel, there is something wrong with our economic system when flour at retail is kept up to a price level of wheat

*Descriptive pamphlets may be obtained from the Committee chairman.

†"Sanitation in the Manufacture and Sale of Food Products," *American Food Journal*, September, 1911.

at $1.90. We hear much about reaction, but when sharp periodical drops in the price of foodstuffs occur on the exchanges, the full benefit of such reaction very seldom reaches consumers.

The cash and carry stores, which include chain stores, have been one source of economy in the retail distribution of food. Our investigation showed that the retail cost of sixteen staple foods averaged 17⅓ per cent less than the prices charged by the charge and delivery stores, while the saving on specialties processed exclusively by the chain stores was somewhat greater. That great masses of people take advantage of this saving is evidenced by the rapid increase in numbers of both types of cash and carry stores throughout the country. This indicates that the American public is in a receptive mood for any progressive economic measures that may be presented to them. We recognize that the charge and delivery stores render a necessary service and convenience to a large portion of citizens who are not obliged to count the pennies in making up their family budgets.

In the retail distribution of milk there are opportunities for conservation which if brought about should result in lower prices to consumers. In the larger centers of population there are numerous dealers whose vehicles cover large territories in serving their customers, whereas, if delivery routes were confined to one section the cost of distribution would be greatly reduced. The operating cost is further augmented in the collection of the product from dairies. We find large dealers collecting their supplies from widely scattered areas, necessitating the maintenance of a far greater number of processing and receiving stations than would be required if they were systematically located to serve contiguous producing sections. To reconcile such customs of trade in the interest of economy is a possibility requiring consistent effort through governmental agencies.

In the general distribution of our foods the use of labor-saving devices for processing and sterilizing, coöperative processing and distributing stations for small dealers, and coöperative purchasing of operating supplies are other economies which might be effected through an intelligent coördination of existing conditions.

From a sanitary standpoint, notwithstanding excellent federal and state laws supplemented by local regulations, there are certain basic principles connected with the distribution and marketing of foods which are too often overlooked. There is an apparent lack of appreciation of the effect of unclean utensils and other contact equipment upon the keeping qualities and wholesomeness of certain foodstuffs. Our observances clearly indicate that a large percentage of spoilage which takes place in a retail meat shop is due to contact with contaminated equipment. We suggest that health regulations should require the installation and proper use of adequate sterilizing facilities in stores where meats, fish, and other like foods are sold. Great cleanliness is also necessary for the vehicles used in the distribution of such foods.

In some parts of the country we find that the distribution and marketing of foods in the smaller municipalities receive little sanitary supervision. This is due, apparently, to the belief that these municipalities cannot afford to maintain such supervision. When this control is not provided by governmental agencies it is suggested that nonofficial organizations might find in this a fruitful field of endeavor. While the need for such work is great in large cities, is there not much duplication because of the fact that the constructive work of such organizations is concentrated in these centers?

Inadequate protection of products after leaving the cold-storage plants, contamination through personal contact in serving prepared foods, exposure to rats, flies, waterbugs, and other insects are menaces prevalent in many food-shops. These dangers may be minimized by frequent inspection. In so far as these

menaces apply to the home, a more active participation in educational propaganda seems desirable. There seems to be a decided lack of uniformity in methods adopted and procedures followed by inspection officials. One city will adopt standards for food inspections and condemnations which, although commendable, are often inconsistent with those in adjoining municipalities, while individual inspectors, with little training, are too often left to enforce their own ideas of sanitation.

Because of disease and disability caused by unwholesome food, it is obvious that food inspection officials should receive proper training for their work. In this connection we call attention to the progressive activities of the Women's Municipal League of Boston, Massachusetts, which has recently opened a training school for public service that aims to fit women to become competent public servants. This school provides a course of instruction covering problems connected with markets and provision stores, slaughter houses, bakeries, and soda fountains.* The Committee feels that something should be done towards standardization of food inspection methods, and the causes for condemnations should be defined on a basis of uniformity.

There has been great waste and spoilage in the surplus of army foods which are offered throughout the country by the so-called "Army and Navy" stores. Although three years have elapsed since the signing of the armistice, great quantities of canned foods are still being offered the public under so-called government supervision. Instances can be cited where considerable quantities of these foods have been condemned by local officials. It is ridiculous for one branch of the government service to be toiling for the health and betterment of the public, while another branch is striving to distribute for consumption, foods which are being condemned by local inspectors. Such distribution has been going on for some time and it now seems opportune that action should be taken.

Regarding the sanitary distribution of milk, as this product is so generally recognized as vitally essential to the human dietary, it receives rather better protection at the hands of state and municipal authorities than do other foods. However, much of the supply for the larger cities comes through interstate shipments over which local officials have no control. It is here that the greatest spoilage and deterioration occur. From a recent investigation made, conditions as regards train schedules, placement of cars, and additional trainmen, are somewhat improved, but the results of inadequate supervision and lack of any definite regulations as to icing in summer and heating in winter are still extremely apparent. The care of the milk in transit and of the return empty containers is left to the discretion of carmen, many of whom are irresponsible and ignorant of the principles of sanitation. The responsibility for such conditions rests with the Interstate Commerce Commission, which has, since our report of last year, taken some steps towards ameliorating them, but such action has apparently been without intelligent investigation and is entirely inadequate. No constructive plan has yet been promulgated to eliminate the sanitary deficiencies or insure permanency in such reformations as have been started.

Needed reforms in the distribution and marketing of food must come through a demand from, rather than a command to, the people. There are no other agencies through which such a demand could be more effectively created than those represented by the American Public Health Association.

WILLARD E. WARD, *Chairman,*
LUCIUS M. TOLMAN,
WALTER W. BURDETTE,
MRS. WILLIAM MORTON WHEELER,
J. LAWRENCE MCCORMICK.

*Descriptive pamphlets may be obtained from the Committee chairman.

FOOD AND HEALTH

HENRY C. SHERMAN, Ph. D.
Professor of Food Chemistry, Columbia University

Abstract of paper read at the Third General Session of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 17, 1921

WHILE the science of sanitation and many years of food inspection have, generally speaking, rendered the food supply safe, the science of nutrition has made it more than doubtful whether a freely chosen food supply is always as adequate as we have been accustomed to assume in the past.

The work of the past ten years has shown that a dietary made up, as so many American dietaries are, too largely of breadstuffs, meats, sweets and many fats, may be satisfying to the palate and to the traditional demand for variety, may furnish ample quotas of protein and calories with fats and carbohydrates in any desired proportions, and yet may be inadequate because of faults in its mineral and vitamine content. Fruits, vegetables, eggs, and, most of all, milk, serve to make good these deficiencies of breadstuffs, meats, sweets and fats.

Brilliant as have been the investigations through which the newer knowledge of nutrition and the newer and broader conception of food values have been built up, they must not be allowed to blind us to the importance of those nutritive requirements which were previously known.

Ample calories, enough protein of suitable sorts, adequate amounts and proper proportions of each of several mineral elements, and enough of each of at least three kinds of vitamines—all these must be furnished by any food supply which is to be permanently adequate.

But we need not stop with mere adequacy. There has been too general a tendency to make adequacy of nutrition the goal of investigations of the nutritional values of foods, and in studying food combinations by means of feeding experiments to stop with the finding of an adequate diet as if there were nothing more to learn.

Feeding experiments with laboratory animals are showing that a dietary adequate according to all current standards may yet be capable of considerable improvement. In a series of experiments still in progress, two groups of families from the same stock have been kept on two dietaries, one containing a sufficient amount of milk to make the food supply adequate, the second differing only in that it contains a higher proportion of milk. This increase in the proportion of milk in a diet already adequate results in more rapid and efficient growth, a slightly larger adult size and distinctly greater vigor as indicated by earlier maturity and more successful reproduction, with a lower infant mortality, and also a lower death-rate among those surviving infancy, notwithstanding the fact that they have borne and suckled more young. There is no reason to doubt that in human nutrition, also, a higher degree of health and vigor will follow an improvement in the dietary, such as an increase in the proportion of milk, even where the original dietary is already adequate according to current standards.

AVOID THE RUSH!

The 1922 Membership Campaign is getting under way. The A. P. H. A. expects every member to get a member. Get yours early!

THE HEALTHFUL HOME

IRA S. WILE, M.D.
Associate Editor, American Medicine, New York City

Read before the Third General Session of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 17, 1921

WHEN the colonists of three hundred years ago settled on the Massachusetts coast they built habitations of logs, filled the crevices with straw and mud, and thatched the roofs with reeds. Oiled paper sufficed for glass. The characteristic stone chimney led up from the broad fireplace in which pine knots crackled and blazed. Within the twenty foot enclosure human beings ate, slept, and worked, while endeavoring to resist the ravages of disease and the attack of the Indians. This was the healthful home of the Pilgrims and Puritans.

Times have changed, and the log cabin is a relic of a courageous past. Whether homes of to-day are more healthful is a matter that merits consideration. It is as impossible to compare the apartment house dwelling to the private house with any great assurance or dogmatism as it is to contrast the abodes of the cliff dwellers with the chateaux of France. The processes of change, growth, and decay are as apparent in the consideration of the homes of each generation as they are in considering the anatomy and physiology of human beings from infancy to old age. The needs and requirements of each age and generation help to determine the general character of their habitations. Their ideas, education, and ideals are closely related to their expression in manner and methods of living. Indeed, the healthfulness of homes must be regarded in the light of the existent knowledge concerning the laws of hygiene and right living.

The healthfulness of homes during the Middle Ages in the days of open sewers and barred streets, when cattle and human beings dwelt together, reflects different standards from those which it is fair to expect to-day in the light of our knowledge concerning the importance of sanitation, ventilation, lighting, heating, water supplies, garbage disposal, and the relation of insect life to family welfare. It is patent that the healthful home for the rural dweller is not identical with that requisite for the promotion of safety and comfort for the urban citizen.

A home is the fixed abode of a person and his family; a congenial abiding place in which should be found affection, peace, and rest. Bearing this concept in mind, one recognizes at once the variations in home organization. As humanity is ordinarily placed in social and economic strata, it is natural to find a differentiation in the homes, from the degraded and degrading levels deemed satisfactory for the poorest to those considered ultra-comfortable for the millionaires. It need not be assumed that the alleged superior dwellings of the rich are, therefore, infinitely more healthful than those available for the poor. The health needs of the artisan, the artist, the laborer and the banker do not vary greatly in so far as physiologic and hygienic standards are concerned. The relative degree to which the ideals are approached varies greatly, but the differences may depend more upon the size of the family or the number of persons per room, than upon the essential defects in the structure.

A reasonably healthful house for a man and his wife may be converted into an unhealthful home when five children are living in surroundings whose air, light and bathing facilities are only adequate for two. A well-ventilated, modern apartment may be converted into an unhealthful abiding place for children by reason of the presence of an ignorant, slovenly mother, or the coarse and disgusting habits of mental dements, or diseased beings who do not know how, or

are unwilling, to take proper care of their secretions and excretions. The segregation of the sick may alter conditions so as to transform an unhygienic home to one that is more healthful.

Standards of healthful living do not depend essentially upon the gratification of esthetic desires. Beauty may influence emotional states and add to the joyfulness of homes, thus reacting upon the general well-being. The architecture in itself, and the use of rare woods, mantels, mirrors and ornate fixtures do not constitute in themselves healthful appliances.

On the other hand, the furnishing of homes with the modern methods of lighting, heating and ventilation contributes greatly to their comfort, safety, and healthfulness. The use of coal stoves instead of gas heaters, the employment of electricity instead of gas, oil, or candles, high ceilings as opposed to low, marble floors as opposed to planks, indicate modifications which do influence the healthfulness of the surroundings.

It is obvious that in discussing healthful homes, it is difficult to generalize concerning homes and families which are of various genera and species. There are essential variations due to differences in economic status, in racial traditions, and climatic conditions. The same type of home that is fitted for the one who lives in the tropics is ill-fitted for one in the polar regions. The heating requirements of those who are well-fed and well-clad are not the same as for those who are half-starved and poorly clothed. From the standpoint of economic maladjustment, the lower the wage scale of the family the greater the attention that should be bestowed upon adequate housing conditions. In the light of our partial failure to recognize communal responsibility for healthful habitations, much of present day discussion is academic. It is true that the high rental problem has more or less overshadowed all other phases of home making. The interrelation of wages and rent at the present time possesses little proportion and eliminates many questions of hygiene and safety which are subordinated to the supreme necessity of securing a place of shelter within the financial possibilities of individual families. The burden of high rentals in the face of falling wages tends to reduce home standards through the limitation of money available for food, clothing, recreation, medical and dental attention. These unfavorable influences unfortunately eliminate numerous fundamental elements conducive to healthful living. It must not be forgotten that morbidity and mortality generally are in inverse proportion to family incomes. To this extent, rental in the low income groups is an exceedingly important factor as a determinant of the general hygienic standards of the home.

In this age there is a constant clash between philosophic ideals and their practical realization. It may be fairly stated that the index of civilization at any period is determined by the ratio of attainment to ideals. In the contemplation of the present situation regarding homes, there are relative peaks of achievement, but these specific performances are of no greater communal significance than incidental accomplishments in painting, architecture, literature, or welfare. The average standards of homes must determine the general character of a home making environment. In an age of electricity it is impossible to regard the standards of the high class home as the norm, as there still remain the majority of homes in which these benefits and advantages do not exist. It is difficult, too, to contrast the hygienic elements in homes adequately provided with natural foods and fresh produce, with those in which dependence is placed upon canned goods, restaurant meals, or recourse to delicatessen shops.

Healthful homes depend upon the interaction of at least five basic factors. These are: biologic, economic, social, educational and political.

The biologic elements are involved in

the home makers. It is patent that the personal element is of fundamental importance in the establishment of healthful homes. This involves the physical and mental well-being of the parents and offspring. The existence of physical handicaps or of communicable diseases are evident influences which lessen the normality of home life, and physical incapacity may serve to deflect the emphasis from the hygienic characters inherent in the habitation to the necessity of stressing personal hygiene and the correction of handicapping personal deficiencies. A paralyzed wage-earner may become partially parasitic and undermine the general health of a family, and lead to a breaking down of the hygienic régime requisite for normal living. Mental deficiencies of parents or children involve numerous difficulties which work against the health, efficiency, and happiness that are necessary for the highest forms of home making. These human elements constitute a most vital part of living, and merit as great consideration as the question of house structure.

Economic factors are of considerable importance. The fundamental necessity of a living wage as a factor in hygiene is not fully appreciated. There may be some relation between income and mental capacity, but, regardless of this, it is undeniable that the amount of money available for the necessities of living is of the utmost significance in determining the realization of the ideals of a home and in securing surroundings which are conducive to health. The relation between a living wage and adequate light, sunshine, food, warmth, clothing, and the gratification of self interests indicates its immeasurable influence upon the health of the home. The economic factor has been revealed in every study of tuberculosis, infant mortality, and contagious diseases thus far made.

Closely related to the economic factor is that of social influence which carries with it social standards. The problems of room congestion, food habits, racial superstitions, boarders, personal cleanliness, and recreational efforts are to no slight degree dependent upon social attitudes and outlook as opposed to the mere difficulties of economic adjustment, which, however, must not be disregarded. The desire for a healthful environment, the wish for social esteem, and the ambition to exhibit the elements of social refinement are not purely cultural in character, but they have an innate influence upon all standards of the home.

Of far greater importance are the educational aspects. The degree of education and training with their correlated effects is of vitally determining import. A knowledge of hygiene is imperative for family health regardless of the physical perfections of the home. A knowledge of foods and cookery, of clothing, of the needs of ventilation and fresh air and sunshine, a realization of the advantage of isolation and quarantine during contagious diseases, a reasonable degree of information concerning the preservation of health and the prevention of disease are necessary to create a healthful home. Natural instincts for self preservation are inadequate in the face of modern conditions of living. Physical and mental hygiene are indispensable and the spread of knowledge concerning them is of the utmost concern to public-health administrators. It is evident that there are definite interrelations between the educational advantages of a home and the biologic and economic characteristics of the home makers.

Leaving the personal elements of the home, one may recognize the political phases that affect the home. The individual is far from completely responsible for the health status of the home. The communal consciousness of the necessity of hygienic living is of transcendent prominence. The civic attitude towards housing merits consideration. Certainly the large functions of water supply, sewage disposal, removal of garbage and rubbish, are recognized as elements in protecting the health of the homes as

part of the protection of the health of the community. Laws and ordinances designed to determine lighting, heating, and the cubic capacity of rooms, and the installation of fire escapes represent the expression of a civic desire to safeguard the welfare of home makers. There is a large number of laws and ordinances written yearly which crystallize current information and evidence the trend of ideals in communities. The degree to which these laws are enforced and the effect thus secured demonstrates the distinction between civic ideals and their practical realization. The existence of neighborhoods whose housing and homes are far below the acknowledged standards of the age is a reflection upon our civic attitude. The breaking down of laws and regulations that aim to destroy dark inside rooms, that promote the bestial herding together of persons in filthy, broken-down tenements is indicative of an impaired civic conscience. The strong, the rich and the educated are able to establish reasonable hygienic conditions in their homes, but the great mass of people are dependent upon the protection that comes from the combined activity on the part of organized society, functioning through intelligent, constructive, social-minded legislation.

To many the subject of healthful homes appears to be a personal matter—one dependent upon individual desire and effort. In the last analysis, however, healthful homes are dependent upon the interaction of biologic, economic, social, educational and political forces, many of which are beyond the control of individuals. In a broad consideration of the problem, therefore, more attention must be given in the future to numerous phases of heredity and eugenics, industrial organization and economic returns, sociological elements, educational opportunities, public-health education, and political ideas as transmuted into legislative enactment and civic interest. It is insufficient to point out the existence of poor plumbing, leaking roofs, and unlighted rooms, the inroads of insects, the existence of alcoholism or drug addiction, the ignorance of individuals and their poverty, and the presence of the diseased and the defectives.

Vision must be directed to the deeper-lying causes responsible for these shortcomings. Much of the responsibility for low standards of homes must be transferred from the individual to the community which countenances, tolerates or condones them. The interdependence of human life and welfare demands the protection of the weak in the interest of the strong. The poetry of home making must not exclude its prosaic nature. The healthful home may be an expression of personality and individual resourcefulness, but its nature and limitations, its advantages and disadvantages, its harmony or maladjustment, its unhealthfulness or its healthfulness are indices of the public interest in the welfare of all manner of citizens, regardless of race, color, social or economic status.

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Health in an Ideal State.—Years ago, Samuel Butler wrote in Erewhon, "In that country, if a man falls into ill health, or catches any disorder, or fails bodily in any way before he is seventy years old, he is tried before a jury of his countrymen, and if convicted is held up to public scorn and sentenced more or less severely, as the case may be. There are subdivisions of illnesses into crimes and misdemeanors as with offenses amongst ourselves—a man being punished very heavily for serious illness, while failure of eyes or hearing in one over sixty-five, who has had good health hitherto, is dealt with by fine only, or imprisonment in default of payment."

May we some day adopt laws similar to that recommended by Butler for erring, stupid or negligent parents.

—*Rochester Health Bulletin*, December, 1921.
(*J. A. T.*)

CHEMICAL AND BIOLOGICAL REACTIONS IN THE DORR-PECK TANK

A. M. Buswell, A. A. Brensky and S. L. Neave

State Water Survey, Urbana, Illinois

Read before the Sanitary Engineering Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 17, 1921

THERE are several methods which have been employed with greater or less success for the introduction of air into sewage, otherwise than by blowing through porous plates. . Some of these have features similar to those of the Dorr-Peck tank. Coulter[1] describes experiments in which he forced water under considerable pressure through a nozzle, allowing it to strike upon the surface of the liquid in the tank. The force of the stream carried a considerable amount of air down into the liquid. In fact, by using a large diameter pipe directly beneath the point where the stream struck the liquid in the tank, thereby producing a sort of suction pump, it was found possible to carry air bubbles several feet beneath the surface of the liquid.

This method has not to our knowledge been employed on a large scale in purifying sewage.

A second method which was employed by Brosius[2] and Trent[3] independently, produces a mixture of air and liquid by drawing or forcing the liquid rapidly down a vertical pipe at such a rate that air is mechanically carried down with the water. In the Trent apparatus a series of small pipes inside the large vertical downtake pipe facilitated the introduction of air. In neither of these machines were the conditions produced satisfactory for the maintenance of activated sludge.

A third method for introducing air, and one which has been frequently attempted, is that of surface aëration. Haworth[4] appears to have successfully operated an activated sludge plant by surface aëration at Sheffield, England. He causes the sewage and activated sludge to circulate through long channels. These channels are approximately four feet wide and four feet deep. The rate of flow is just sufficient to maintain the sludge in suspension and amounts to one and a half feet per second. Housings cover paddle wheels which force the liquid along the channels. This plant has a capacity of 500,000 gallons of sewage per day and has been in successful operation for over a year. The capacity is equivalent to 1.3 million gallons per acre per day and the power equals 50 h. p. per million gallons.

One point which should be mentioned in connection with the success of this particular experiment is that there is a considerable amount of iron or pickle liquor waste in the raw sewage. It will be remembered that Mumford in describing his M7 called attention to the importance of iron. Of the various methods of economizing on air we should like to call attention to the intermittent aëration proposed by G. A. H. Burn.[5] This author suggests cutting off the air during the peak of the power load. If the peak does not last more than 3 or 4 hours, satisfactory results might be obtained.

The second feature of the Dorr-Peck tank is the automatic return of sludge. Among the previous investigators who have designed apparatus so as to return the sludge without pumping might be mentioned the following:

Frank[6] describes a tank with a central aërating chamber, and two elevated side chambers with a V cross-section, the aëration taking place in the central chamber from which the aërated sewage overflows into the side chambers where sedimentation takes place. The bottoms of these chambers are open so that the settled sludge drops back into the aërating chamber.

Martin[7] describes a cylindrical tank divided into segments. A radial trough is provided for sedimentation, from the bottom of which the settled sludge may be returned to the aërating segment.

G. T. Hammond's[8] tank had an upper and lower chamber, the lower chamber being used for aëration and the upper chamber for sedimentation. The settled sludge could be returned by gravity.

George Moore[9] describes a two-chamber tank with means for discharging the thickened sludge from the lower portion of the second tank directly back to the first.

S. H. Adam's[10] sedimentation tank had an apron roof in which sedimentation took place in the upper portion of the tank on the apron, the settled sludge slipping through a slot into the lower portion of the chamber.

Other means for accomplishing these results have no doubt been employed. The above are mentioned simply as examples of progress in this direction.

DESCRIPTION OF TESTING STATION

The plant* at which the experiments described in this paper were carried out is shown in the accompanying figure (Fig. 1). At the left in the foreground is a steam boiler; further back and a little to the right, is a Bayley drier, while at the extreme right of the picture are seen the two Dorr-Peck tanks which were operated in series. The small tank was used for drawing and concentrating sludge. In the background is seen the housing over the old Talbot septic tank of historic interest. This tank is also known as the original Champaign septic tank. At the left of and a little behind the drier can be seen the Patterson filter press. Figure 2 shows a closer view of the Dorr-Peck tanks. The pipe in the foreground to the right carries the entire effluent of the plant as discharged from a weir box. One of the workmen can be seen taking a reading of the height of the water over the weir. A Foxboro gauge makes a continuous permanent record of the amount of the effluent. At the left may be seen a portion of the

*Previously mentioned by Edward Bartow in *Proc. Amer. Soc. for Mun. Improvement*, 1920, p. 280; *J. Ind. and Eng. Chem.*, Oct. 1921, p. 945.

Fig. 1. A view of the plant showing the Dorr-Peck tanks

Fig. 2. A closer view of the Dorr-Peck tanks

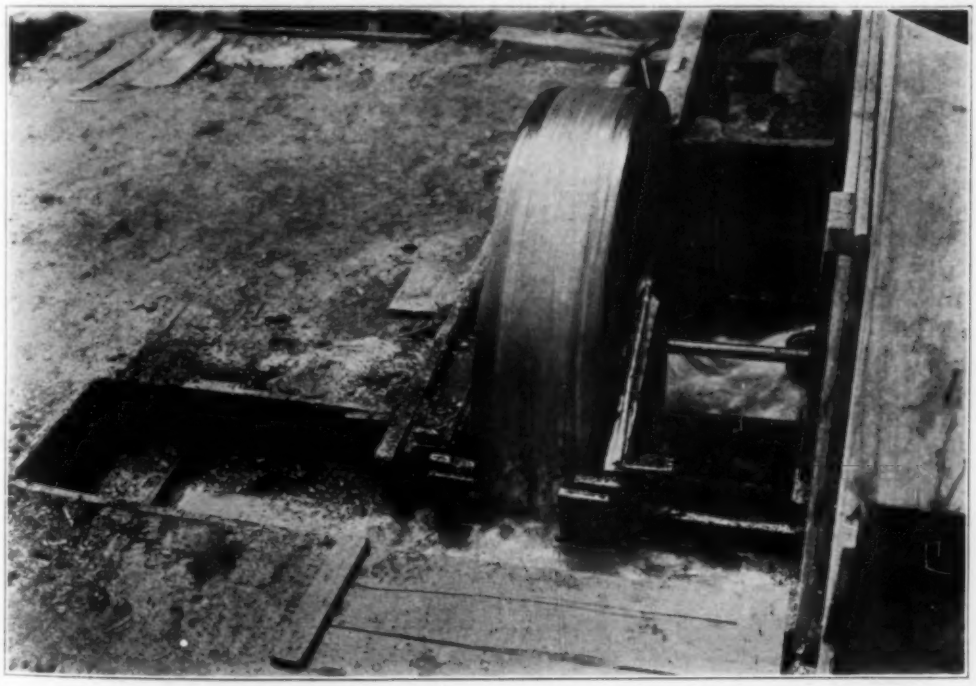


Fig. 3. A small Dorrco screen receives a portion of the sewage

housing covering the motors, pumps and blower. The white collars about the upper portions of the tank are canvas wind breaks provided to prevent disturbance of the sedimentation chamber.

The outfall sewer carrying the entire sewage of the city of Champaign runs along between the Dorr-Peck tanks and Champaign septic tank. A portion of this sewage is taken off through a small grit chamber and passed through grate bars with 1⅜ inch spacing and delivered to a small Dorrco screen shown in Figure 3. This screen consists of a revolving drum, the periphery covered with a screen having slots 1/16 in. x ½ in. parallel to the axis of rotation. The data on the operation of this screen will be given elsewhere.

Figure 4 shows a diagrammatic cross section of the Dorr-Peck tank. As has been noted these tanks were used in series. The dimensions of the tanks with capacities of the various chambers and the detention periods in each, based upon a 100,000 gallon per day flow, are as follows:

Both tanks are 17 feet in diameter and 13 feet high, with a capacity of 2,930 cubic feet or 22,000 gallons each. The lower is the aëration chamber, the capacity of which is 1920 cubic feet or 14,400 gallons in the first tank, and 1,700 cubic feet or 12,700 gallons in the second tank. The upper chambers are settling chambers and have capacities of 7,600 gallons in the first tank and 9,300 gallons in the second tank. The detention periods based on a flow of 100,000 gallons per day are as follows:

Total time of treatment, both tanks, 10.5 hours. Aëration period, first tank, 3.5 hours, second tank, 2.95 hours. Sedimentation period, first tank, 1.8 hours, second tank, 2.2 hours.

The settling chamber communicates with the lower chamber by means of four peripheral downcast wells, two of which are shown in section in the figure. These downcast wells are baffled as shown to prevent air bubbles from rising through the sedimentation chamber. Sewage passes from the aëration chamber to the sedimentation chamber through the cen-

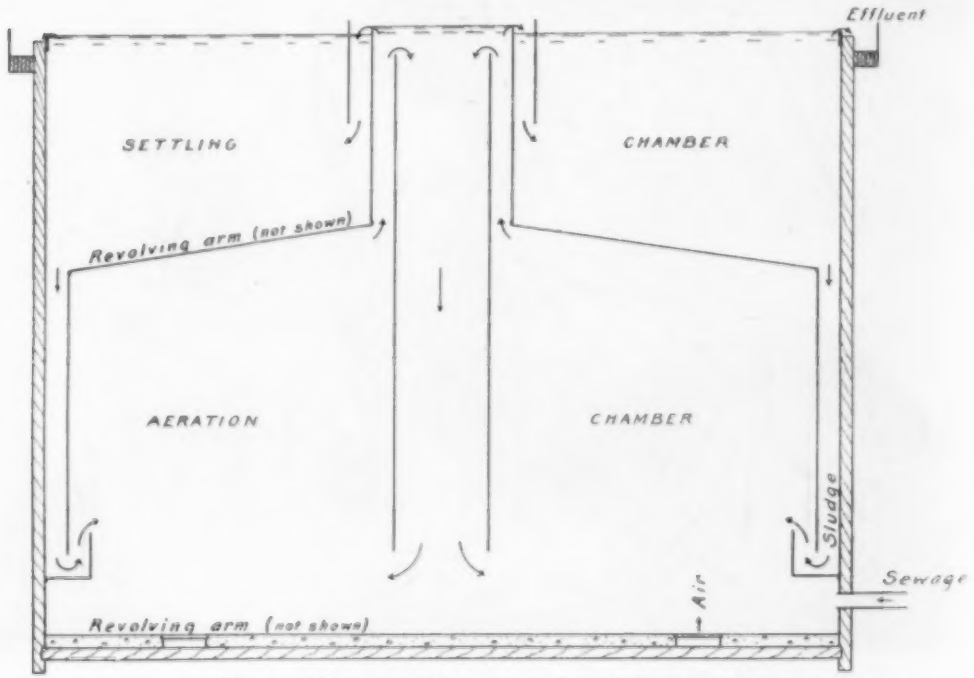


Fig. 4. Diagrammatic cross section of Dorr-Peck tank.

tral upcast well, as indicated by the arrows.

The two long vertical lines in the center enclosing the arrow pointing downward show the position of the circular downcast well, whose function will be described later. The two short vertical lines at either side of the upcast well represent a circular baffle which prevents undue agitation of the sedimentation chamber. An annular trough collects the overflow from the settling chamber. A plan of this tank would be represented simply by five concentric circles which, if numbered from outward toward the center, would represent: No. 1, outer wall of the effluent channel; No. 2, the wall of the tank; No. 3, the baffle; No. 4, the upcast well; No. 5, the central downcast well.

Filtros plates are set in an inscribed square in the bottom of the tank, the area of the plates being about one-sixth the area of the tank. Both chambers are provided with Dorr thickeners not shown in the figure. These thickeners are operated by means of a central shaft upon which the central downcast well is hung. The settling chamber baffle serves as a brace for the revolving arms of the thickener in the sedimentation chamber, hence the baffle and the circular downcast well revolve with the mechanism. This mechanism has a velocity of one revolution in seven minutes. The function of the thickener rakes in the lower or aëration chamber is to prevent the collection of sludge upon the floor of this chamber. In the sedimentation chamber the thickeners plow the sludge toward the periphery, keeping the sludge in motion and preventing it from becoming septic.

Sewage enters the first tank, as indicated by the arrow in the lower right. It is mixed with sludge returning through the peripheral downcast wells, and aërated. The air bubbles, acting as an air lift, cause the sewage to rise to the level of the top of the upcast well and overflow. A portion of the aërated sewage then slops over the collar of the upcast well and passes through the sedimentation chamber, while another portion returns, together with considerable amounts of air, through the central downcast well. This central downcast well has an effect somewhat similar to the down suction wells of the Brosius and Trent machines, with the result that air is drawn down with the returning sewage. The effluent from the first tank passes by gravity to the bottom of the second tank, which is set a little lower to provide the necessary head. The amount of liquid slopping over the collar of the upcast well must be greater than the total flow of sewage, otherwise sewage would pass up the peripheral downcast wells, a condition which must be absolutely prevented. The amount of the slopover has been measured by means of a weir designed by Mr. A. A. Brensky, the engineer in charge of the operation of the plant. This weir is shown in Figure 5.

The outer circle shows a metal outer wall band with weirs, which is clamped

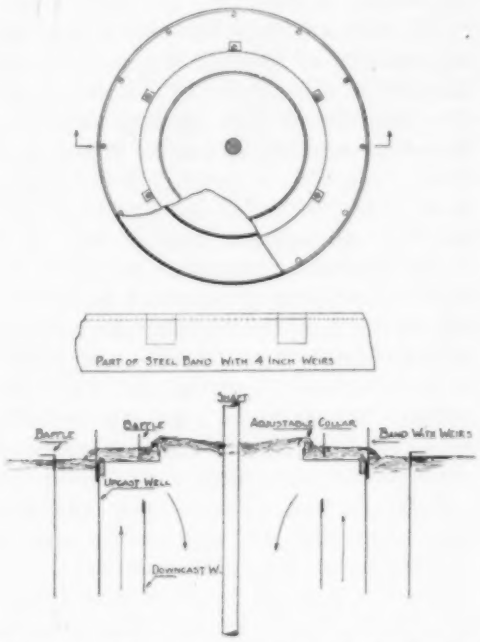


Fig. 5. Plan and section of device on upcast wells of the Dorr-Peck tanks

around the upcast well. The second circle shows a stilling baffle, while a third circle, not seen in this view, represents the collar of the upcast well. The cross-section shows the flow through the weir. Figure 6 is made from a photograph of the weir in operation.

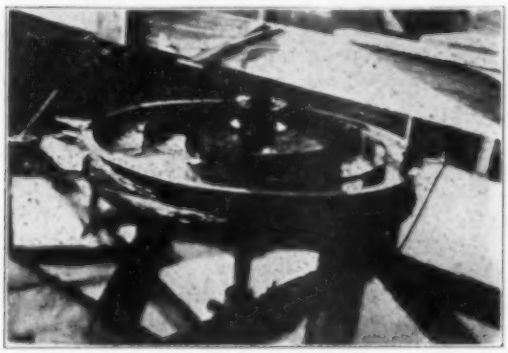


Fig. 6. Weir in operation

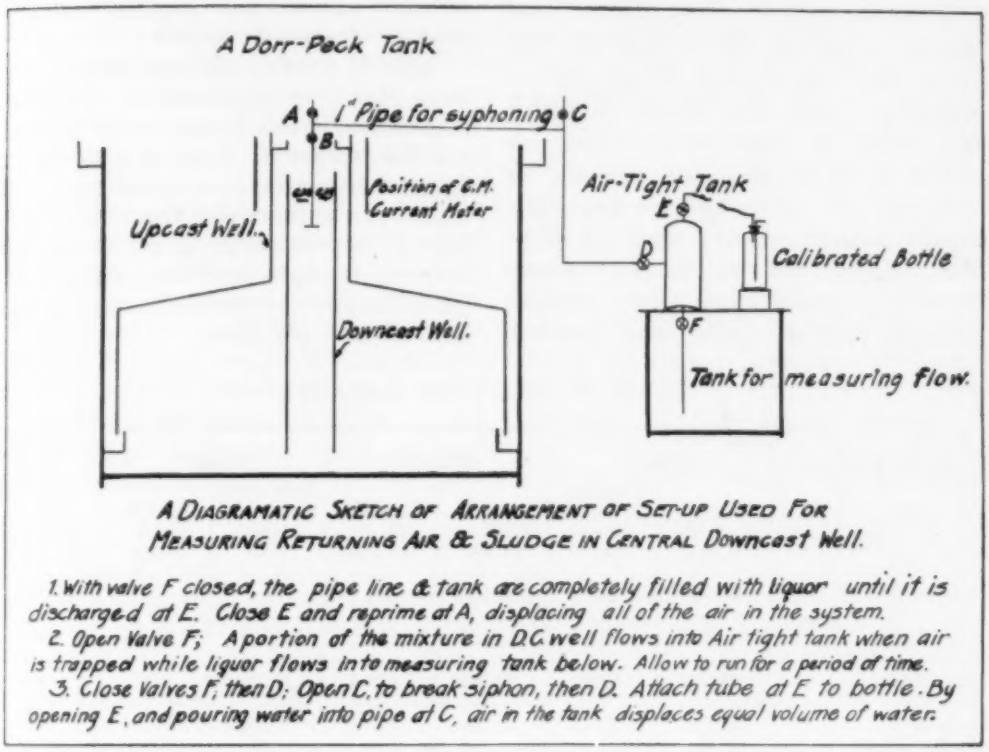
The sewage which is raised by the air-lift slops over into this annular weir instead of directly into the sedimentation chamber. By means of this device we are able to measure the rate of flow in the sedimentation chamber. The weir is provided with an inner movable collar, the adjustment of which determines the amount of the slopover. The effect of this adjustment may perhaps be illustrated by mentioning one or two critical points. If, with a constant flow of sewage and air, the collar is adjusted so that the flow through the weir is just equal to the total flow of sewage, we have the highest operating position of the collar, and at the same time a minimum velocity in the sedimentation chamber and a zero velocity down the peripheral downcast wells. When from this position the collar is lowered the flow is increased through the weir, thereby increasing the velocity in the sedimentation chamber and producing an appreciable velocity down the peripheral downcast wells. Incidentally, it might be noted at this point that the velocity in the sedimentation chamber and the amount of return of sludge through the peripheral downcast wells are dependent upon the same adjustment, namely, the height of the collar on the upcast well weir. This same effect can be obtained by lowering or raising the downcast well.

If, again starting from the position at which the flow through the weir is exactly equal to the pumpage, we should raise the collar of the upcast well weir, we would cause a reversal of the flow through the peripheral downcast wells, thereby disturbing sedimentation and preventing the return of sludge to the aërating chamber. An additional adjustment was provided by placing a movable collar around the upper end of the central downcast well, with the idea that raising this collar would decrease the amount of return through this well, and lowering, of course, would have the opposite effect. The adjustment of this apparatus was sufficiently complicated without the use of this collar, so that we have made practically no use of it.

It will be seen, then, that there are four factors effecting the rate of flow through the sedimentation chamber: First, the amount of sewage pumped; second, the amount of air used; third, the height of the collar on the upcast well or weir; and fourth, the height of the collar on the downcast well. To maintain the sedimentation chamber velocity constant, it is necessary, therefore, to adjust the collar for each change in amount of sewage treated or amount of air used.

The air economy accomplished by this apparatus is presumably due, in a large measure at least, to the return of air and sewage through the central downcast well.

Figure 7 shows the arrangement of apparatus used for finding the ratio of returning air to liquid and the velocity and quantity of flow in the central downcast well. The manner of procedure is given in the figure. With this apparatus two series of tests have been run. In the first the velocity down the central downcast well was found by current meter readings to be .70 to .75 feet per second and the



A DIAGRAMATIC SKETCH OF ARRANGEMENT OF SET-UP USED FOR MEASURING RETURNING AIR & SLUDGE IN CENTRAL DOWNCAST WELL.

1. With valve F closed, the pipe line & tank are completely filled with liquor until it is discharged at E. Close E and reprime at A, displacing all of the air in the system.
2. Open Valve F; A portion of the mixture in D.C. well flows into Air tight tank when air is trapped while liquor flows into measuring tank below. Allow to run for a period of time.
3. Close Valves F, then D; Open C, to break siphon, then D. Attach tube at E to bottle. By opening E, and pouring water into pipe at C, air in the tank displaces equal volume of water.

Fig. 7

"returned air" amounted to 5.1 per cent of the amount introduced through the filtros plates. In the second series the velocity down the central downcast well was .65 to .70 feet per second and the "returned air" 6.3 per cent of that blown. The central downcast well velocity might be expressed by saying that the average particle circulates down this well twenty times.

EXPERIMENTAL RESULTS

Nitrogen Balance: Previous experiments carried on by the Dorr Company with the coöperation of Professor D. D. Jackson of Columbia University had indicated that the activated sludge process as carried out in this apparatus did not result in the loss of nitrogen. Accordingly, one of our first experiments was to determine whether or not nitrogen was lost in this process.

For this purpose, hourly samples of the effluent and influent were taken and composited for analysis. The sludge drawn from the apparatus was carefully measured and samples taken for analysis. The analyses included determinations of free and albuminoid ammonia, nitrates, nitrites, and total organic nitrogen by the Kjeldahl method. The ammonia, nitrate and nitrite, and organic nitrogen, all expressed as nitrogen, were added together, converted into pounds per 1,000 gallons and multiplied by the flow for each day. These sums were tabulated for the entire period from December 14, 1920 to February 18, 1921, and are presented in Table I.

TABLE I

NITROGEN BALANCE DEC. 14, 1920—FEB. 18, 1921	
Total gallon influent	5,556,310.00
Total gallon effluent	5,468,810.00
Total gallon sludge	87,500.00
Total nitrogen influent, lbs.	1,423.83
Total nitrogen effluent, lbs.	1,332.15
Total nitrogen sludge, lbs.	85.66
Net loss nitrogen, lbs.	6.02
Net loss	.43%

From this table it will be observed that during a run extending over 63 days there was a net loss of .43 per cent of nitrogen. Since this amount is within the limits of experimental error, we would conclude that our methods of sampling and analyzing have been sufficiently accurate to keep track of all of the nitrogen, and that in this process there is no volatilization of free ammonia and no reaction taking place between primary amines and nitrites whereby gaseous nitrogen is formed.

Table II shows a nitrogen balance run from May 3 to September 1. The data is presented in this form in order to point out the danger of drawing conclusions from short periods of operation. For instance, it appears that from May 14 to May 21, approximately 11 per cent of the entering nitrogen was lost, while from June 2 to June 15, there was an apparent gain of 25.7 per cent.

TABLE II. NITROGEN BALANCE

Duration of Run		Influent		Effluent		Sludge		Loss or Gain
Date	Days	Average Gals. in 24 hrs.	Total lbs. N_2 Added as Scr. Sewage	Average Gals. in 24 hrs.	Total lbs. N_2 in Effluent	Total Gals. Drawn During Run	Total lbs. N_2 in Sludge	In Nitrogen (Per Cent)
May 3-13	11	88,200	200.2	84,100	184.2	.....	.....	— 7.9%
May 14-21	8	86,700	163.9	85,600	122.2	9,050	23.68	—10.9
May 22-1	11	88,500	152.0	86,600	118.7	17,100	43.07	+ 6.4
June 2-15	14	91,430	273.0	85,200	176.1	87,150	166.85	+25.7
June 16-30	15	87,700	338.9	85,840	277.3	26,840	25.04	—10.8
July 1-10	10	84,800	216.1	81,100	210.2	3,700	3.08	— 1.3
July 15-31	17	78,600	343.9	73,500	268.4	88,100	100.40	+ 7.2
August 1-15	15	70,500	293.2	62,800	187.4	92,450	1?4.50	— 0.1
August 16-21	6	62,000	132.6	57,000	65.9	30,100	83.60	+12.7
August 22-1	11	64,600	207.6	62,800	143.3	19,630	51.40	— 6.2
Total	118	.....	2,321.5	.....	1,753.8	374,120	601.62	Ave.+1.5

Such a result as this would lead one to infer that there must be considerable fixation of atmospheric nitrogen, while, as a matter of fact, there was undoubtedly an accumulation of sludge from the preceding period which was drawn during the first two weeks of June. Averaging the results for the entire period, we note the apparent gain of 1.5 per cent of nitrogen. When the difficulties involved in obtaining an average sample are considered, as well as the limits of accuracy of the analytical procedure, we regard this value of 1.5 per cent as being within the limits of experimental error, and checking reasonably well with our loss of .4 per cent, which shows the result of the previous run.

These results are interesting when compared with results of nitrogen recovery experiments on activated sludge made by other workers with different types of activated sludge tanks, and using much larger quantities of air. For instance, Pearse and Mohlman[11] state that in the summer there is a 41 per cent loss of nitrogen and in the winter a 23 per cent loss of nitrogen. In the Packingtown experiments it might be noted that 3½ to 4 cu. feet per gallon of air was used.

There is, of course, danger of being misled when comparing results obtained on different sewage.

Wet Burning of Solids: At the suggestion of Mr. G. W. Fuller, who visited our plant some time ago, we made a calculation from our data to determine the amount of solids "wet burned." From Table III it is seen that the total amount of solids in the influent from May 3 to September 3 was 78,300 pounds, while the effluent contained 65,400 pounds and the sludge 8,070 pounds of solids. Adding the sludge solids to those of the effluent and subtracting from the total solids in the influent, we see that there is a loss of approximately 5,000 pounds of solids. In other words, approximately only two-thirds of the solids removed are obtained as sludge. This table also shows that the sludge amounts to a little less than ½ ton per 1,000,000 gallons. From the analyses of the sludge given in Table IV, its extremely light character can be observed. The average analysis of 64 samples of sludge shows (Table IV) 99.74 per cent moisture. The nitrogen in the dry sludge calculated from analyses of wet samples amounted to 5.63 per cent. This, it will be noted, is calculated as nitrogen and not as ammonia.

TABLE III

REMOVAL OF SOLIDS, MAY 3, 1921—SEPT. 3, 1921

Gallons influent	9,466,000
Pounds influent	78,600,000
Pounds solids influent	78,300
Gallons effluent	9,091,880
Pounds effluent	75,700,000
Pounds solids effluent	65,400
Gallons sludge	374,120
Pounds sludge	3,104,200
Pounds dry solids sludge	8,070
Influent solids minus effluent plus sludge solids pounds	4,830

TABLE IV

SLUDGE ANALYSES

(Average of 64 samples)

Moisture	99.74%
Total solids	2622 ppm.
Total nitrogen	211.8 ppm.
Nitrogen in dry sludge	5.63%

Reduction of Nitrates: In the earlier experiments of the activated sludge process considerable attention was paid to the amount of nitrification, that is, of oxidation of organic nitrogen and ammonia to nitrates. Metcalf and Eddy,[12] quoting Hatton[13] and Copeland's work, report that in experiments at Milwaukee using as little as .67 cu. ft. of air per gallon, clarification was obtained but no marked stabilization of the sewage. Reference to the table of data in the article cited above shows that using that amount of air, there was a complete reduction of nitrites and a 50 per cent reduction of nitrates. By using enough air so that decided nitrate formation was produced, these workers obtained a clear and stable effluent.

In Figure 8 we have plotted the amount of air used, the amounts of free and albuminoid ammonia in the effluent and influent, and the amounts of nitrates plus the nitrites in the effluent over the period from May 13 to September 28.

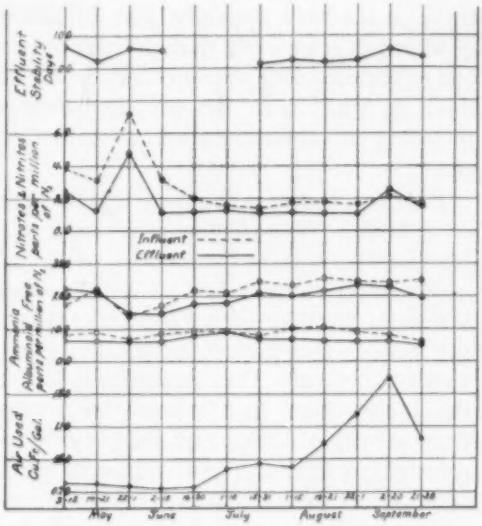


Fig. 8

From this diagram it is seen that there is an appreciable decrease in both free and albuminoid ammonia as well as in the nitrates in the effluent. It is interesting to note, however, that when the air amounts to 1½ cu. ft. per gallon, the effluent and influent curves for nitrates cross. In other words, at this point

nitrification takes place. Again, on reducing the air to one cubic foot per gallon there is a reduction of nitrates. This data leads to the conclusion that in the experiments reported in this paper, the nitrification phase of the activated sludge process is entirely absent, and that nitrification is not essential to the success of the process. It is apparently possible under some conditions to produce a clarification and reasonable stabilization of sewage operating with so little air that nitrate oxygen in the raw sewage is actually consumed by the microörganisms of the sludge. Attention should, however, be called to the fact that one maximum in the stability curve occurs simultaneously with the maximum influent nitrate and the other with the maximum air. If it is assumed that the free ammonia and nitrates and nitrites are essential as food for the microörganisms composing the sludge, this may explain why there is no very apparent loss of nitrogen; for it is possible that the nitrites do not reach sufficient concentration to cause them to react with the primary amines resulting in the liberation of nitrogen gas.

Relation Between Volume and Weight of Sludge: It has generally been the practice[14] to control the amount of sludge in the aërating chamber by withdrawing a sample from time to time and reading the volume to which it settles in a given length of time. Our experience led to the observation that where the sludge was exceedingly light and feathery in appearance, it did not have the same purifying effect as when a denser sludge was employed. In order to determine whether there was any distinct relation between the volume and weight of these settleable solids, we have plotted in the diagram (Figure 9) the volume against the weight. These points indicate that there is no definite relation between these two values. For example, taking four samples of sludge which settled to 50 per cent by volume, we observe that one contained

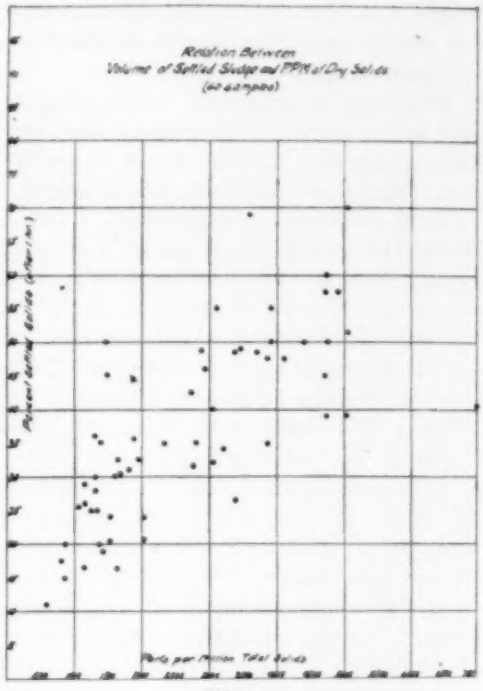


Fig. 9

1,500 parts per million of dry solids, a second 3,800 parts per million, a third 4,400 parts per million, and a fourth 4,750 parts per million. And again taking three samples of sludge which contained approximately 5,000 parts per million of dry solids, we see that one settled to 70 per cent by volume, a second to 52 per cent by volume, and a third to 38 per cent by volume. In a third case two samples settling to 40 per cent by volume showed 3,000 to 7,000 parts per million of dry solids respectively. With as wide and irregular variations as these, it is apparent that in our case at least it is impossible to judge the effective amount of sludge by sedimentation. If the variations were only slight it might still be possible to operate using sedimentation, but when the variation becomes so great that the volume figures would indicate opposite procedure to that of the weight figure, it is necessary to change the method of control. For example, during one period of operation the aëration chamber was carrying about 70 per cent

by volume of sludge, yet this sludge contained only 1,500 parts per million of dry solids. Judging from the volume, one would have said that too much sludge was present, but from the weight there was evidently not sufficient sludge present. Instead of drawing sludge, as the volume data would have led us to do, we actually returned sludge to the system, with the result that conditions were improved.

Purification Results: The operating data and the results of 15,000 chemical analyses are compiled in a complete series of tables too voluminous for reproduction here. A compact summary, or general average of all data, is shown in Table V. It will be noted that from June 16 to July 31, a light sludge was obtained which was allowed to overflow, the idea being to determine whether this light sludge would continue to form under the conditions of operation, or whether it would gradually increase in density. Leaving out this period, we see that the average turbidity of the influent is 234 parts per million, while that of the effluent is 48. The oxygen consumed from permanganate is decreased from 58 to 33 parts per million, while the nitrate is decreased from 2.1 to .90 parts per million. The relative stability, using the methylene blue test, averaged 2½ days or 43 per cent on a ten-day scale.

TABLE V

AVERAGE ANALYSES OF 234 SAMPLES

From May 3 to September 3
(Sewage treated: 9,466,000 gallons)

SCREENED SEWAGES

	Maximum	Minimum	Average		Average excluding June 16-July 31*
Settleable solids (1 hr. Imhoff cone)	0.47	0.13	0.26%		0.26%
Turbidity	447	129	237		234
Residue on evaporation	1560	840	997	ppm.	1007
Chlorides	195	62	113	ppm.	109
Alkalinity (Methyl Orange)	493	237	420	ppm.	405
Oxygen consumed (from $KMnO_4$ ½ hr. 100°)	103	25	59.3	ppm.	58
Free ammonia	24.6	7.2	16.4	ppm.	15.5
Albuminoid ammonia	11.3	0.9	4.2	ppm.	4.2
Total organic nitrogen	40.0	4.0	12.3	ppm.	12.1
Nitrate nitrogen	14.6	0.1	1.4	ppm.	2.1
Nitrite nitrogen	0.59	0.0	0.15	ppm.	0.26

EFFLUENTS

	Average of 234 samples	Average excluding June 16—July 31*	
Turbidity	68	48	
Residue on evaporation	863	828	ppm.
Chlorides	114	107	ppm.
Alkalinity (Methyl Orange)	405	398	ppm.
Oxygen consumed (From $KMnO_4$ ½ hr. 100°)	35.8	33.0	ppm.
Free ammonia	14.8	15.1	ppm.
Albuminoid ammonia	2.2	1.7	ppm.
Total organic nitrogen	7.9	5.7	ppm.
Nitrate nitrogen	0.69	0.90	ppm.
Nitrite nitrogen	0.10	0.10	ppm.
Relative stability (Methylene Blue)	(2½ days)	43	%

*From June 16 to July 31 sludge was allowed to overflow tank No. 2 with the effluent.

Over shorter periods considerably better results were obtained, as is shown in Table VI.

Here it will be observed that average stabilities of 56 to 87 per cent respectively were obtained.

TABLE VI

	March 14-27		March 28-Apr. 3	
	INF Av.	EFF Av.	INF Av.	EFF Av.
Turb.	182	52	152	22
O_2D	43.5	20.7	41	30
Alb.N	2.3	1.7	1.84	1.39
NH_3	10.07	10.7	11.3	9.6
NO_2	.49	.32	1.05	.75
NO_3	4.1	1.75	7.8	8.2
Av. stab. 56%			Av. stab. 87.4%	
Range 21 to 95+%			Range 50 to 95%	

For the purpose of answering frequent inquiries the bacterial count on the raw and treated sewage was determined over a ten-day period. These results are set forth in Table VII, and indicate in general a 90 to 95 per cent removal of total organisms.

TABLE VII

INFLUENT

Lab. No.	Collected	Bacteria per c.c. Agar
45328	June 3, 1921	135,000
45330	" 4, "	45,000
45334	" 5, "	162,500
45347	" 7, "	680,000
45364	" 8, "	228,500
45378	" 9, "	260,000
45384	" 10, "	650,000
45387	" 11, "	280,000
45391	" 12, "	380,000
45395	" 13, "	585,000

EFFLUENT

Lab. No.	Collected	Bacteria per c.c. Agar
45329	June 3, 1921	1,170
45331	" 4, "	1,950
45335	" 5, "	6,500
45348	" 7, "	9,800
45365	" 8, "	1,350
45379	" 9, "	19,500
45385	" 10, "	45,500
45388	" 11, "	21,000
45392	" 12, "	27,000
45396	" 15, "	6,500

GENERAL OPERATION

In Figure 10 we have plotted the different amounts of raw sewage treated, sedimentation periods, aërating periods, amount of air used, and stability from May 3 to September 28.

In this diagram it may be seen that the amount of sewage treated varied from 93,000 gallons per day to 62,000 gallons per day, while the aërating period varied from a little less than seven hours up to

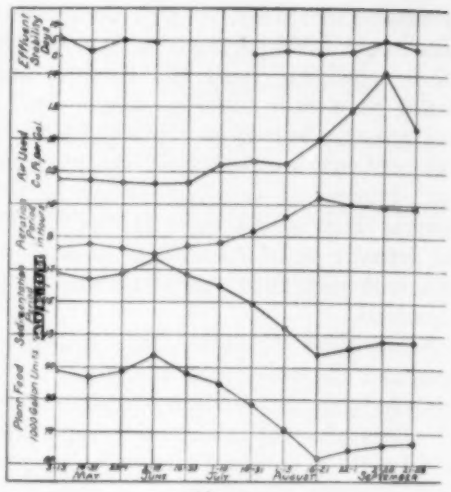


Fig. 10

a little more than ten hours. The amount of air varied from approximately .7 cu. ft. to 1.41 cu. ft. When compared with the previous diagram it is noted that with high nitrates in the raw sewage, a flow of approximately 90,000 gallons per day was treated with about .7 cu. ft. of air, and employing a seven hour aëration period, giving at the same time very satisfactory stability results. With a decrease in nitrates, however, it was necessary to increase the amount of air and decrease the flow, so that equally satisfactory results were obtained using approximately a ten-hour aëration period and 1.4 cu. ft. of air.

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COMMUNITY ORGANIZATION IN THE ANTI-TUBERCULOSIS CAMPAIGN

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An address delivered before the School of Public Hygiene of the University of Pennsylvania, Philadelphia, on October 22, 1921

GIVEN the responsibility of the tuberculosis problem in a community, what steps should be taken by a health officer in discharging his duty and in organizing all the available and necessary forces?

In a brief paper on the subject it is possible to touch only on the high spots of such a large and difficult health problem, but this has its advantages if one limits himself to a statement and examination of the methods which have had the test of practical experience. It will be at once stated that only the most economical and direct measures should be developed in a new and unorganized community.

Answer must first be given as to why there is still, and will be for quite some time, a necessity for stressing the fight against tuberculosis. It is a disease which still causes one-tenth of all deaths. In a city like Philadelphia, therefore, unless something miraculous is developed unexpectedly, 180,000 of the present population are doomed to die from this so-called "preventable disease." Furthermore, the findings of the Framingham, Massachusetts, tuberculosis experiment have revealed that there is living in a community an average of nine active cases of tuberculosis for each death. Also, tuberculosis picks the majority of its victims among adults between twenty and forty-five years of age, thus taking the most valuable producers of the community. Finally, the death-rate among men is almost twice as high as among women.

I. SURVEY THE COMMUNITY FIRST

A survey of the amount of tuberculosis in the community should be the essential preliminary step before anti-tuberculosis work is started. The number of deaths the disease causes annually should be ascertained. A study of the individual death certificates should reveal where most of these deaths occur. There can be no organization which will meet the tuberculosis problem with success unless it also realizes the difference in susceptibility to, and the greater or lesser amount of the disease among certain racial elements of the population. Towns, or sections of a city, with a larger proportion of colored, Irish, or German stock, will have a greater amount of tuberculosis for a given number of people than those which contain only racial groups who, with a longer past history of city life, have developed a certain immunity—such as the Jewish, Italian and English stocks. In the survey of the community a study of the principal industries in which the population is engaged should be included. It must be remembered, since tuberculosis prevails mostly during adult life, and among men especially, that conditions of work and industrial hazards are probably the greatest factors in the cause and development of active tuberculosis. Finally, a responsible tuberculosis officer will take stock of the community resources, namely, the existing health institutions, the relief societies, and all the organizations engaged in public-health work, especially those who do home visiting or nursing.

It will be assumed that the organized community will have a proper sanitary code which will include compulsory tuberculosis registration. This preliminary measure, more than any other, is of

fundamental importance if any knowledge of the everyday problem of the living cases of tuberculosis is to be had. The information furnished by mortality returns is too belated for the effective care of the sick and the protection of the community. There can be no real sanitary follow-up work unless there is quick and timely registration of cases of tuberculosis as soon as they are discovered. Concerning registration of tuberculosis, it should always be remembered that it will be abortive of its original purpose unless it equally includes the reporting of cases not only when first discovered but also at the time of their disposal or of passing from under observation by medical authority; that is, the private physician, whether he notify first or it be ascertained through a department of health questionnaire, must also let the authorities know that a tuberculosis case is no longer under his care; the dispensary, as well as the hospital, must report that a tuberculosis case has been discharged. Registration otherwise will quickly accumulate a large amount of dead wood and be discredited. On the contrary, if registration is adequate and continuous as long as a tuberculosis case is neither cured nor ended by death, the knowledge of the number who are under the care of private physicians, or under the care of institutions, or who remain at home will become known and will be invaluable in assisting the officer to know his full problem and where he must meet it. He can then marshal every resource and agency for an adequate control of tuberculosis.

The health officer, having ascertained the amount of tuberculosis in the community, having become acquainted with the conditions that make for a greater or lesser number of new cases, and having listed all the available resources, should then plan, first, for the active care of the sick, and second, for the protection of the community and the prevention of tuberculosis in the general population.

In the plan for active work and care of the sick the first and best support must naturally be sought among the medical profession. The tuberculosis officer must interest the best elements of this profession and all those better equipped by experience in the care of the tuberculous.

II. DISCOVERY OF TUBERCULOSIS

For the discovery and home care of the tuberculous individual, no better instrument has been fashioned or developed than the tuberculosis dispensary. It must be first stated that any plan which anticipates caring adequately for all the tuberculous in the community must be one which remembers that tuberculosis is first of all a home problem. In New York City, for instance, where for years there has been a very effective and intelligent registration of living tuberculosis cases, the following grouping of patients has been revealed: Among a total of 27,252 cases registered on October 1, 1921, there were 2,568, or 9 per cent, under the care of private physicians; 3,271, or 12 per cent under the care of tuberculosis clinics; 3,523, or 13 per cent, in city hospitals; 3,399, or 13 per cent, were out of town or in sanatoria; 4,889, or 18 per cent, were homeless or lodging house cases and patients who had recently been lost track of; and finally, 9,602, or 35 per cent, were remaining "at home," not under medical care. Altogether only 26 per cent were in institutions, and the remaining 74 per cent of the known cases in the city were a home problem.

The utilization of the tuberculosis dispensary as against hospitalization is much more economical and, through its home follow-up of cases, the only agency really reaching the home ground of the disease. The tuberculosis clinic is also a health clearing house for both the tuberculous and the other members of the community in need of examination. It should also be a center for health education. It can even be effective for treatment, and lastly can do a great deal in the work of the prevention of tuberculosis.

Experience has shown that the best use of the tuberculosis dispensary demands certain facilities and methods of work. It cannot fulfill its primary useful function of diagnosis unless it has access to an X-ray department and laboratory facilities, and has a competent staff of specialists, or the benefit of expert consultation service. Further, if possible, it should have some means or facilities for the observation and study of doubtful cases. Any diagnostic work in tuberculosis which is dependent only on physical signs revealed by examination, and not on an equal study of the symptoms of active tuberculosis, will be inferior and there will be lost a number of patients in need of treatment. The well organized tuberculosis dispensary will segregate its groups of patients and will find it advantageous to have separate clinic sessions for adults and for children. It should also be open on certain evenings to facilitate the attendance of working men. It may well have separate sessions for the colored, and can best handle foreign groups by having a nurse in attendance speaking the language of the larger groups.

From the previous remarks it may be concluded that the time has arrived when it must be said that the best dispensary work possible will be accomplished when it is conducted as an extension of hospital work. Only where the necessary accessory services are to be found, such as in a hospital or in a general dispensary, can the much needed preventive work for the correction of physical defects among those in contact with tuberculous patients be attended to.

The tuberculosis dispensary must include in its work home visiting and follow-up by trained public-health workers. The combination of a tuberculosis nurse with social service experience is the best. The nurse who at the same time is in attendance at the clinic where the patient calls and becomes acquainted with the physical condition of her charges will likewise do better home work. Moreover, she will more understandingly help the patient to carry out at home the advice of the physician. Then too, the clinic nurse who is familiar with the home conditions of her patients can furnish the physician invaluable additional facts when the patient returns for treatment. The tuberculosis nurse's work demands that she have supporting her effective social service connection, be it in the form of an auxiliary committee or by the social service department of the hospital where the dispensary is established.

The ordinary tuberculosis dispensary has become a place for diagnosis mainly rather than for treatment, and yet, as already pointed out, tuberculosis is mostly a home problem. There should be special consideration by dispensaries, especially in smaller communities where there may be more open air facilities around the homes, of the tuberculosis class method developed so successfully by Dr. Pratt of Boston. The class method is primarily the utilization of home facilities first rather than the disturbing costly method of sending patients to institutions. It consists in assembling periodically groups of patients in the earlier stages of tuberculosis to meet a competent physician, and the promotion of cure-taking at home with the assistance of a nurse who visits the patients somewhat more frequently than is usually done in ordinary dispensary follow-up work. It is most feasible with patients in the incipient or moderately advanced stages and who have at home some porch or easy access to the open air. Above all, it demands the inspiration of a competent physician and of a real social service nurse familiar with cure-taking.

Finally, for thorough dispensary work the community should be districted. It is probable that in any fair sized town there should be several such institutions opened. All parts of the city and all citizens are entitled to, in a long drawn out battle like that of tuberculosis, equal assistance and protection from the authorities. An intelligent districting of the

community for dispensary purposes reduces the distances which a patient may have to come for care as well as the time and space to be covered by the public-health visitor. Where much ground must be covered, it has been found economical for a staff to cover many points with occasional but regular branch sessions from an existing main dispensary. Of late years it has been found useful to lay out the district boundaries for dispensary work on the same lines as those followed by the federal census in enumerating the population. It should enable the health authorities to compute very accurate rates of morbidity and mortality occurring in known populations by sanitary areas.

III. INSTITUTIONAL CARE

The dispensary, having found the new cases of tuberculosis and assured a certain amount of home care, quickly reveals that there is a proportion of them who are obviously in need of institutional care. The two broadest groups into which these patients usually fall are those in the early or ambulant stage, and the advanced or bed cases. For many of the early or ambulant cases the sanatorium in the country or in some place which affords a change from city life is needed. Experience shows that, generally speaking, it is the younger people or those without many social ties or family dependents who usually can or will accept the advice to leave home. This has often given rise to the statement that tuberculosis was mainly a disease of the young. However, dispensary experience, where all types of cases are found, does not warrant this generalization. There is a large group of mothers or fathers of families, and others who have dependents, who are also early cases but who cannot consent readily to leave home. For them it has often been found that almost equally good results in the treatment of their disease can be obtained by merely having them attend a day camp that should be attached to the dispensary or nearby hospital. Returning home at night they can discharge a measure of responsibility and exercise a certain amount of supervision over their families, and yet during the day follow the open air and rest régime as well as in the country. Day camps can be operated on the roofs of hospitals or decks of old boats, or almost any place where there is open space, provided some kitchen facilities can be added for the noon meal which is usually furnished by these institutions. The day camp can be operated for one-third the cost of a sanatorium or of a hospital. Furthermore, the education of the family of the patient and the improvement of home conditions are much more effectively accomplished when there is the daily return of the improving patient demanding and showing the results of better health habits.

For the bed or dying case of tuberculosis, every community should have provision either in a special local hospital or in some separate ward arrangement in connection with the general hospital. The dying tuberculous patient, especially in homes where there are children, must, whenever at all possible, be segregated.

In the well organized community there should also be provision for the hospital reception of patients during acute periods of their disease. The local tuberculosis hospital should provide for the patient equally good open air facilities as does the sanatorium. Treatment should be modern and of the best. It cannot be expected that sick patients will readily accept going to the hospital when perhaps they have already had or seen what the sanatorium offers, unless the hospital gives them the same comforts and attention. Good results will be impossible for patients who enter the hospital during periods of exacerbation of the disease unless these open air facilities are available. Finally, the tuberculosis hospital should be readily accessible for visiting by the relatives of patients. It is far better and more humane to make the tu-

berculosis hospital what it should be rather than to advocate forcible removals.

For tuberculosis in children, institutional provision will be required for the surgical type rather than for the pulmonary. Experience has shown that with the former, the open air and sanatorium method in the mountains is not the best unless it includes a great deal of direct sun or air baths upon the naked body. The best results with surgical cases of tuberculosis can be had in the marine sanatorium, that is, where children may get all the stimulation to be had from salt water bathing, the more powerful sunshine, and the more invigorating air of the seashore.

IV. PREVENTION OF TUBERCULOSIS

After the tuberculous patients in the community have been cared for, the still greater problem of the prevention of tuberculosis in the population at large remains for the tuberculosis officer, and, before reaching the broad public, he must first dispose of those more directly in contact with the tuberculous case, namely, the family of the patient. Through the dispensary he can see to it that all members of the family in contact with the tuberculous patient are examined. The remedying of physical defects and the improvement of home conditions will go a long way toward saving the remaining exposed members of the family.

Work with the children from tuberculous families should be especially thorough. They are of the coming generation and should therefore receive the fullest attention. All should be examined, weighed, and their physical defects remedied. The full reaping of good medical and social work can be best assured by the organization of nutrition classes for those who are below standards of health. For children who do not respond quickly through the improvement of home conditions there should be provided open air classes or preventorium care. Finally, summer care and outings should be considered.

It should be especially remembered that in childhood there are two periods of greatest danger from tuberculosis, first among infants when the highest mortality of any age from tuberculosis occurs and second, during adolescence when, with the advent of puberty and entrance of the majority into industry and the working world, the first great crop of tuberculosis of adult life occurs. Protection against the first danger, in infant life, lies in absolute cleanliness of the milk and food supply and in the removal of open cases of tuberculosis from their surroundings. The adolescent period, from a tuberculosis standpoint, requires even more careful supervision than the school period in building up strength.

Passing from the care of the tuberculous family, the tuberculosis officer comes upon a larger problem, namely, the protection of the community. This can best be accomplished through the development of educational work.

The public educational program must first include the medical profession. Education in tuberculosis and facilities for practical experience concerning it should be provided in both the undergraduate training period and postgraduate work of physicians. A tuberculosis consultation service and medical meetings for tuberculosis should be promoted.

The tuberculosis officer is interested likewise in seeing that the public-health worker, especially in the visiting field, is adequately trained in tuberculosis work. This training should include experience not only in hospital wards but in sanatorium régime also, and in visiting experience as well as in social service.

No effective tuberculosis work can be carried on in a community unless it has the best and fullest support of the public at large. Business methods point out the way. There is the all-permeating public press; the tuberculosis officer should not disdain filling health columns and answering questions, instead of leaving it to the quack. Attractive posters with a mes-

sage of health and information as to where to secure authoritative advice and the best care should be displayed throughout the community. Lecture service should be extensive and should support dispensary work, promote general examinations and reach the working man especially. There should be traveling health exhibits with qualified attendants, as well as permanent miniature exhibits wherever they will do good. The motion picture offers artistic presentations of health messages. Labor education should be insisted upon and should be devoid of all taint of being promoted only for the employers' benefit. Attractive popular literature should be distributed broadcast; some of it should be in foreign languages. Finally, the children still in school must be reached. There is the modern health crusade method, the health clowns, and there are the attractive health primers available nowadays.

In securing public support, the tuberculosis officer will get in contact with the best, as already stated, not only in the medical profession, but he will also closely coöperate with social agencies and will try to interest public-spirited men and philanthropists. He will see business men and will work through churches and women's clubs and any other community organizations which stand for progress and organized usefulness. The tuberculosis officer will be interested in the promotion of all public-health programs. He is interested in a clean milk supply, in school medical inspection, in factory inspection, in tenement legislation enforcement, and above all, in industrial hygiene. Finally, good, efficient organization demands that there be coördination of work among dispensaries, tuberculosis institutions and health agencies. And, if the voice of the statistician may be added, the tuberculosis officer will always keep his feet on the ground and keep well informed, securing all his facts first as to the extent of the tuberculosis problem before making recommendations and undertaking new work.

CONCLUSION

To summarize, community organization against tuberculosis demands:

First, surveying the extent of its ravages and prevalence.

Second, listing the resources available against it.

Third, registering all living known cases for sanitary follow-up work.

Fourth, providing dispensary facilities for the discovery and home care of the tuberculous.

Fifth, opening sanatorium and hospital beds for the patients in need of them.

Sixth, protecting and strengthening those directly exposed to tuberculosis.

Seventh, enlisting all public support possible.

Eighth, developing general public education of the broadest character as to the nature and prevention of tuberculosis.

REPORT OF THE COMMITTEE ON RURAL HEALTH ADMINISTRATION

Read before the Public Health Administration Section of the American Public Health Association, at the Fiftieth Annual Meeting, New York City, November 14, 1921, and adopted by the vote of the Section

SINCE the last meeting of the Association there have been no material developments which would alter the stand previously taken by the Committee relative to rural health administration in the United States. The experience of the past year has served only to emphasize in a most striking manner the soundness and success of the coöperative principle in rural health administration. Where it has been operative, rural health work has become tremendously popular. This condition is due not alone to financial aid furnished to local health work, but also

to the advisory and supervisory system, which is an essential adjunct to the financial aid extension. So much is this true that few, if any, of the health officers working under a system of this kind could be persuaded to work under independent conditions.

By the coöperative principle the local health units, therefore, profit through both the financial subsidy afforded and by greatly increased working efficiency. The demand for the coöperative principle on the part of local health organizations is, accordingly, most insistent.

The experience of state boards of health with the coöperative principle has been no less satisfactory. The conviction is growing ever stronger that the road to expansion on the part of the state health organization lies through strong and active local units, more especially in rural communities, as these are otherwise practically beyond the reach of state forces.

From the national standpoint, the need for effective health administration in rural communities creates an ample and compelling argument for federal participation, not on a fractional, but on a broad and comprehensive scale. It continues to be true that industries, professions and politics recruit their leaders largely from rural districts. Better health and living conditions will contribute more and stronger men for such important national activities. The proverbial high cost of living has its tap-root in farm products. It is a settled fact that there is a strong tide of migration from the farm to towns and cities. The growth of cities and industrial centers takes place constantly at the expense of rural districts, which means on the one hand that the demands for food supplies by nonproducers have enormously increased, while on the other hand the production facilities have fallen off at an equal and opposite rate. The farms, therefore, are sparely manned, production is curtailed, and food prices must remain high. Or, on the other hand, where it is possible to maintain a working force on the farm, it is only through competition with an elevated scale of prices offered to labor at the industrial centers, with the same end result, namely, that the city consumers of food products have to bear the burden of this unnatural condition in their grocery bills. One important avenue of escape from this vicious circle is to keep the rural population at home, and to do this the one essential principle is to make farm life more healthful and attractive.

Nor are we without a poignant example of the dependence of national existence upon rural reserves. Armies always have and always will travel and fight on their bellies. Where would America or even modern civilization have been to-day had it not been for the American farm? Not only did the American farmer ration our own splendid army, but also, in large part, the armies and peoples of all other nations that shattered the powers of darkness and barbarism. In addition to this, the American farmer contributed his full portion of man power to the military forces and industries essential to a steady stream of munitions and other supplies.

In view of these facts, the Federal Government cannot ignore any duty or opportunity that would strengthen rural life. Coöperative federal aid extension is a well established principle that is applied to the improvement of all farm products, except the greatest, namely, the farmer and his household. Any influence that would damage or destroy the efficiency of the farmer himself would likewise lessen the dividends derived from federal money invested in agricultural extension work. Since the work that has already been done in coöperative rural health administration has proved that handsome returns in prevention of unnecessary sickness and death are obtainable, it is the unqualified belief and conviction of the Committee that the appropriation of federal aid extension principle to all rural communities through state health departments constitutes the best investment from the standpoint of economy to the entire nation

that it is possible for Congress to make.

Throughout this Report the term "rural" has been used. This, of course, must be understood to include all communities except those large enough to be called citites, as the problems of the smaller towns and villages are essentially those of the farm. It will be noted also that the term "county" has been studiously avoided, since the rural unit is not always the county. In contemplation of the federal aid extension principle, it is immaterial whether the local unit be a county, township, or district. More especially is this true in view of the attention now being given to the possibility of subsidizing local activities on the basis of work accomplished, rather than the organization in charge.

Federal aid extension for the betterment of the public health should all be concentrated in and through the United States Public Health Service as it now stands, or may be in the future constituted.

The Committee desires to emphasize the fact that a balanced program in rural health work is at once the most economical and most effective, wherever permanency is intended. This principle is coincident with one which is still more fundamental, that there are certain public-health duties which must be recognized as essential to any program of organized rural health administration.

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OBJECTIONABLE FORMS OF PENNY CANDIES

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Read before the Food and Drugs Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 14, 1921

CONFECTIONERY has an admitted food value and is therefore properly classed with foodstuffs and comes under the jurisdiction of food laws, although little of it is eaten at mealtime or with the intent of supplying nourishment or of satisfying hunger.

This extra calorific intake is sometimes the cause of alimentary disturbances, and frequently confectionery is blamed for illness and is suspected by the ignorant or ill-informed of containing poisonous or irritating substances, when the fault lies, not with the article itself, but in the misuse of it. Even Disraeli speaks of "the irreclaimable and hopeless votary of lollipop, . . . the opium eater of the schoolboys."

Children are responsible for an enormous consumption of candy and manufacturers being well aware of this, constantly cater to their trade by originating novel and appealing forms. Most of these are sold at a low price. A child with a penny can always purchase something in the candy line at one of the stores which strive to attract and hold this kind of trade. These stores are usually small, situated in congested neighborhoods or near schoolhouses in the large cities and are generally owned or are in the charge of persons of rather limited intelligence, who are either oblivious of or incapable of appreciating their responsibilities in this connection.

There has been a great improvement in the main, in recent years, in the character of many of the penny candies which are offered for sale to children. Most of them are made of wholesome materials and an increasing number of them are appearing in wrapped individual pieces, thus minimizing the danger of contamination from handling or exposure.

The competitive effort on the part of rival manufacturers, however, has led them of late into lines which are deserving of censure on account of the potential harm which may result. I refer specifically to the types of candy made in the form of playthings. The fundamental idea is not a new one, for who does not remember Eugene Field's sugar plum tree where the gingerbread dog chased the chocolate cat through the branches.

Christmas cookies are often made in animal or bird forms and the clear candy toys of the holiday season are sometimes used for decorating Christmas trees. The "animal crackers" of the groceries are a perennial delight to children. Sometimes these cakes, candies and crackers are played with and subjected to contaminating handling.

Of recent years, however, the candy novelties in the form of playthings have developed along entirely different lines, some of which are emphatically subject to disapproval. The majority of these objectionable forms are made of so-called licorice candy. And I use the expression "so-called" advisedly for many of them contain little or no licorice, the color being due to a little carbon black (lampblack) and the flavor to oil of anise. Most persons, children and grown-ups, confuse anise and licorice flavors, because they are usually associated, so the manufacturer takes advantage of the fact and makes a black confection, flavors it with anise, and then often puts a warning note on the box: "These goods contain no licorice," which is ignored by the seller who supplies them when licorice is asked for.

The component parts of this material, which is now made up into so many different forms, are sugar, glucose, starch or flour, flavor and lampblack, with sometimes a little licorice added to give warrant for the name. These ingredients in themselves are not indigestible nor harmful, but it is the manufacturers' evident intent to make something durable in the way of a confectionery novelty, so he combines his ingredients to make a tough, flexible mass which can be drawn, rolled or moulded into any desired form and which is tough and resistant, hard to chew, slow to dissolve, and represents the acme of indigestibility.

Some of the objectionable forms in which this mass is then prepared for sale are as follows: long hollow tubes like a section of rubber tubing, through which children suck up water or beverages or through which they blow their breath, long flexible solid strips, called by the manufacturers, "shoe laces," bead-like strings of the material called "necklaces," often worn by children before eating them. The latest form that I have seen, and one concerning which definite complaints were made to the Philadelphia Health Department by parents who stated that children had been made ill by them, is "pocketbooks." These resemble leather in texture, and are made in the form of a small flat purse with a flap and a coin compartment, in which are placed several disc-like sugar wafers representing money.

The obvious intent of these candies is to encourage children to play with them. The novelty appeals to the child and the result is that a piece of confectionery, which as to its texture merits severe criticism on account of its obvious indigestibility, is carried around and played with, subjected to all kinds of contaminating handling and then eaten finally.

There are probably many other forms besides these which I have described, which merit criticism for the reasons stated. There is obviously no law at present under which such confectionery forms can be prohibited. Possibly regulations adopted by boards of health in communities where there is a responsive spirit will answer in some cases. Publicity and education, however, are the main compelling forces which aid in bringing about such reforms. Condemnatory resolutions by national, state and local health organizations, and protests to the Na-

tional Confectioners' Association for transmission to the offending manufacturers, are the methods which will give prompt and satisfactory results.

These manufacturers are very keen to merit public confidence and when the situation is placed fairly and squarely before them with the weight of organized effort back of the protest, I believe that improvement will be rapid and permanent.

I therefore recommend that the Section of Food and Drugs of the American Public Health Association express its disapproval of objectionable forms of candy playthings such as purses, necklaces, etc., and instruct its secretary to take up the matter of formulating a definite protest for communication to the proper officers of the National Confectioners' Association.*

*Professor LaWall's recommendation to communicate with the National Confectioners' Association was favorably acted upon by the Section.

THE TREATMENT OF SWIMMING POOL WATER WITH ULTRAVIOLET RAYS

W. F. WALKER

Deputy Commissioner, Board of Health, Detroit

Read before the Sanitary Engineering Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 17, 1921

MANY factors have combined, in recent years, to promote the use of the indoor swimming pools. The ever increasing contamination of our lakes and rivers with domestic and commercial waste is rapidly forcing those who seek safe bathing away from the natural out-of-door bathing beach. The "old swimming hole" no longer exists in the degree of purity and inviting appearance in which it did 50 years ago. The municipal bathing beach and the bath house facilities provided in the large cities on our lakes and rivers have been found far from adequate for the public needs. In Chicago, Cleveland, and Detroit, difficulty is experienced in maintaining the water in safe condition, and the fact that the period of use of appurtenances is but three to four months at most, brings the cost, in many instances, very near that of an indoor pool.

The ability to swim is now a common requirement for graduation from high school, and the pool is, therefore, a part of the standard equipment of most new buildings.

With greater use of indoor pools, the public is demanding that a higher sanitary standard shall prevail. It is no longer sufficient that the water be clear. The patrons, as well as the swimming instructors, are learning the significance of bacteriological results, and show a keen appreciation of the results obtained by the method of treatment employed.

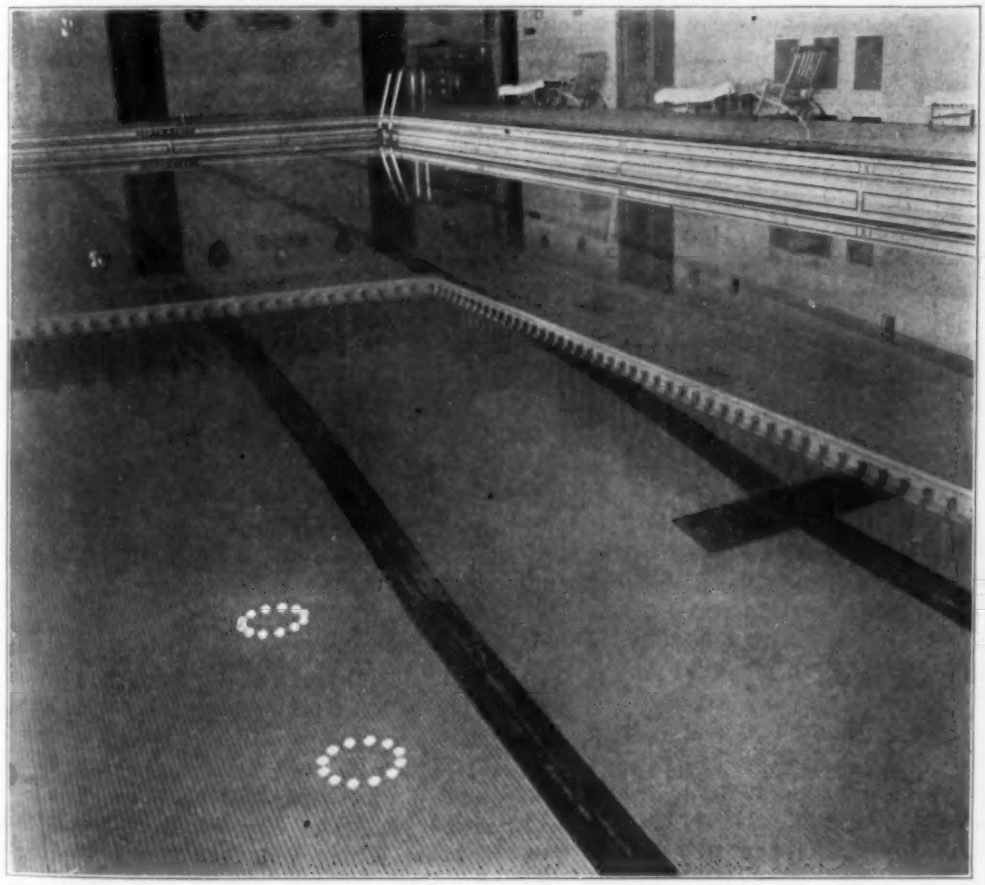
A high degree of efficiency of operation coupled with ability to give nearly continuous service is now required of treatment plants. The treatment of swimming pool water has developed more rapidly than the treatment of municipal supplies. There was first a period of draw and fill, when the only treatment was to fill the pool and after some use empty the water to waste. This may be compared with the period when cities confronted with a contaminated water supply sought a new source which was as yet undefiled. Second, came the period of filtration, when in most instances the water from a contaminated source was filtered, to render it suitable for use. Next came the period of sterilization when the load became too heavy to be handled by filters alone, and some form of sterilization had to be provided to take care of the overload.

From this point on, the problem of municipal supply and swimming pool treatment begins to differ essentially. The municipal supply has reached its goal of

delivering pure water to the consumer, but the swimming pool is, by the nature of its use, continually contaminated. The danger, which is believed to exist as a result of this continuous contamination, is not infrequently questioned, and the argument is put forth that the instances of disease, which have been traceable to swimming pools, do not at all compare with the number of patrons. We find the explanation of this seeming discrepancy in the fact that the virulence of many pathogenic organisms decreases rapidly outside of the human body. Infections, therefore, are probably in most cases limited to the group using the pool at the same time, so that the infectious material while still fresh, is washed onto the mucous membranes.

The supervision of the bathers, requirement of preliminary baths, and other common items of sanitary control, will do much to maintain a safe water, but are not in themselves sufficient. Just as in the protection of our milk supply we must rely on pasteurization, even though we have dairy inspection, so in our swimming pools we must rely on a carefully planned method of water treatment, even though a first line of defense is thrown up in the form of sanitary supervision of the bathers.

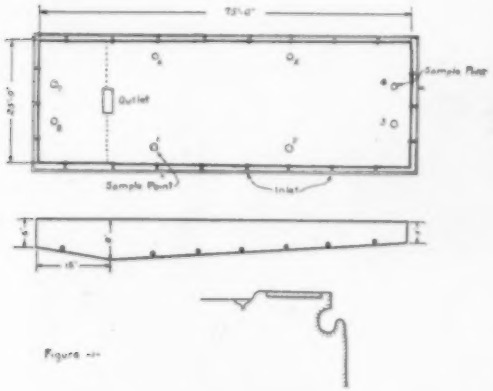
It has been the good fortune of the writer to have an opportunity to make a rather complete study of the operation of a well built and carefully operated swimming pool at the Detroit Athletic Club, and I believe the results are of such



Swimming Pool, Detroit Athletic Club

a nature as to be of interest to all who are confronted with the problem of swimming pool treatment.

The pool under consideration is located on the fourth floor of the building with exposure on the south and east sides, so that it is adequately lighted during the daylight hours. The plan shown herewith, Figure 1, gives details as to size, shape of bottom, scum trough, inlets, outlet, and water distribution system. The capacity of the tank to the scum trough is 80 thousand gallons. Attention is directed to the arrangement of the inlets. There are 22 in all, placed approximately 8 feet apart around the pool at the bottom. These inlets are connected to a 3 inch header which runs entirely around the pool and connects again to the main, so that the head is uniform at each point and an equal volume of water is admitted by each inlet.



Figure

The outlet is at the center of the deep section, and insures positive circulation from all parts of the pool.

The treatment plant consists of two 84-inch hygeia pressure filters and a Type E-2-2 ultraviolet ray sterilizer. (Type E-2-2 consists of two units of pressure type 1,000 gallon per hour sterilizers, which, when operated in series will handle 5,000 gallons per hour.) The water is circulated through the filters, sterilizers and heaters by a directly connected centrifugal pump, adjusted as to speed to deliver approximately 7,000 gallons per hour.

The filters are larger than are ordinarily found in swimming pool practice, and were purposely made larger to permit the filling of the pool in about six hours. As operated, the rate of filtration is 1.7 gallons per square foot per minute, which is rather low for pressure filters. The filters are ordinarily used without alum except when the pool is being refilled with fresh water.

The study of this pool was divided into three periods of one week each as follows:

First period. During the first period the pool, after a thorough cleaning, was filled with filtered city water at the rate of 7,000 gallons per hour, and during the daily period of use, from 9 A. M. to 5 P. M., filtered water was supplied to the pool and the displaced water run to waste through outlet at the same rate.

Second period. During this period, the pool, after being filled with filtered and sterilized city water at the same rate as before, was supplied with filtered and sterilized water at the rate of 7,000 gallons per hour, the displaced water running to waste as in the first instance.

Third period. During this period, the pool after being filled, as in the preceding period, was supplied with filtered and sterilized water at the rate of 7,000 gallons per hour, by recirculating the water in the pool through the treatment plant.

A meter was installed on the supply line, metering all water going to the pool.

During the entire study bacteriological analyses of the water in the pool were made from samples collected in the morning, just before the pool was used, and in the afternoon, just after the peak load. Eight sample points were established as shown on the plan. A study of the individual and composite samples drawn with a pipette from each station, indicated the reliability of the composite samples, which were used as representing the pool. These samples were run following the standard methods of water

analysis. Plates were made of 0.1 and 1 c. c. portions, and complete records of attendance and temperature were kept. The pool is in general used by classes (both men and women) so that it was easy to establish the time of peak load, and there was very little use after the afternoon sampling period. For the most part the same individuals are concerned in all of the three periods, thus, the question of the effect of personal habits is eliminated.

In Table I is shown the results of examination of composite samples taken from the pool daily, morning and afternoon, during the three periods, as well as the average daily attendance, and the temperature of the water.

TABLE I.

BACTERIOLOGICAL EXAMINATION OF D. A. C. SWIMMING POOL
37°—24 HR. COUNT

	A. M.			P. M.			Av.	Av.	Water
	Max.	Min.	Av.	Max.	Min.	Av.	dly. att.	temp. of water	used.
1st. Per.....319	16	116	606	29	208	78	80	255,780 gal.
2d. Per..... 77	9	28	110	17	64	66	81	244,020
3d. Per..... 70	3	19	120	7	41	98	80	recirculates 7,000 gal. 1 hr.

Let us consider the results for the first period. Filtered water was added at the rate of 7,000 gallons per hour, yet the afternoon count is nearly double that of the morning. Figure II shows the rate at which purification is accomplished under these conditions, using Gage's formula.* This would indicate that a 50 per cent purification took place in the 8 hours of use. At the end of the sixth hour, which was the time of usual occurrence of the peak load, 42 per cent purification should have been accomplished. Samples of the filter effluent show an average count of 5 with a maximum of 10 and a minimum of 1.

Turning our attention to the second period when the rate of purification by dilution was the same as in the first period, the only difference in operation being the sterilizing of all water furnished to the pool, we had still a considerable increase of afternoon over morning count, but what is more remarkable, an average count which is but one quarter

CHART SHOWING RATE OF PURIFICATION OF D.A.C.POOL
When Supplied at the Rate of 7000 Gal. per Hour for an 8 Hour Day

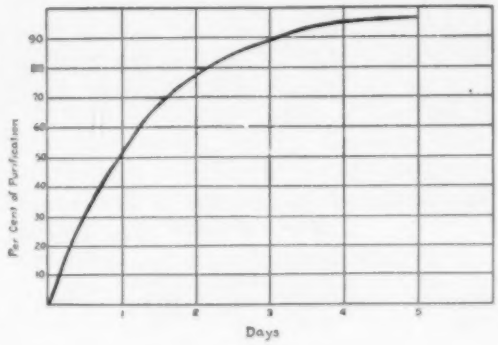


Figure -8-

of the average during the first period. It is true that the attendance is slightly lower but the temperature is one degree higher.

Are we to presume that the lower attendance together with the fact that sterilized water was delivered to the pool are responsible for a drop of 142 bacteria per cubic centimeter in the average count after use? I, personally, do not believe so. There has been some evidence put forth in the last few years to show that the effect of ultraviolet rays on the bacteria in water is not confined to the short interval during which it is exposed to

*Note: Gage's formula $D=(\frac{V-v}{V})n$

D=portion of dirty water remaining.
V=volume of pool.
v=volume of water added at each dilution.
n=number of successive dilutions.

the direct rays of the lamp, but that the absorption of the radiant energy by the water renders it mildly germicidal. It would seem that the results of the second period are further evidence in the support of this phenomenon.

The results of the third period show a further decline in the bacteria content of the pool, both in the morning and at peak load, in spite of a 20 per cent increase in attendance. The presence of B. Coli in the pool, though not great, is of interest. During the first period, three out of twenty-four 10 c. c. portions developed gas. During the second period five out of twenty-six 10 c. c. portions showed gas, and three out of twenty-six 10 c. c. portions during the third period showed gas.

At no time were B. Coli shown to be present in 1 c. c.

It is of interest at this time to compare the yearly average operation of this pool during the fiscal year ending June 30, 1916, which was before the installation of sterilizers, with the past year. Table II shows these results.

TABLE II.

BACTERIOLOGICAL EXAMINATION OF D. A. C. POOL YEARLY AVERAGE

	37° Count			Coli. 100 c.c.
	Max.	Min.	Av.	
1916	216,000	0	26,700	350
1921	240	0	61	0.75

It is, of course, possible that the sanitary supervision of the bathers was better during the first period of this study than during the entire year of 1916. However, the operation of the pool is under the direction of the same person, and the patronage is essentially the same.

Under the normal operation, the water in the pool is circulated continuously at 7,000 gallons per hour, 24 hours per day, which gives a purification curve as shown in Figure III. The water remains in use for periods of 5 or 6 months without fresh water being added except what is necessary (6 or 8 inches per day) to flush off the surface and to make up for loss over the scum trough.

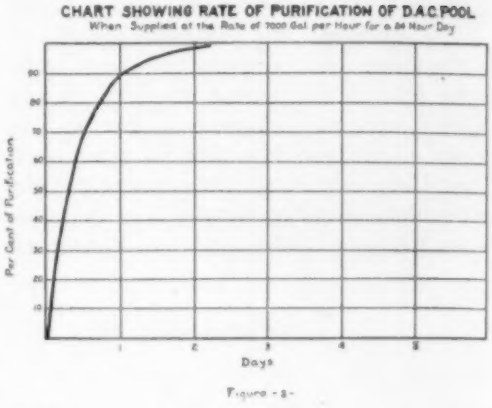


CHART SHOWING RATE OF PURIFICATION OF D.A.C. POOL
When Supplied at the Rate of 7000 Gal per Hour for a 24 Hour Day
Per Cent of Purification
Days

Figure -a-

The question of change of chemical content during long periods of use is frequently asked.

Table III compares the average of six chemical analyses of pool water after 5 months' use with the average chemical content of the city tap water for 22 months.

TABLE III.

COMPARATIVE TABLES OF CHEMICAL ANALYSIS OF D. A. C. POOL AND DETROIT CITY TAP WATER

	Average of 6 samples after 5 mos. use D. A. C.	Average of 22 monthly samples City Tap Water
Total solids	130.0	151.7
Non-volatile solids	73.0	100.5
Volatile organic matter	59.0	51.91
Free ammonia	0.111	0.038
Albuminoid ammonia	0.228	0.109
Chlorides	9.0	5.08
Nitrates	0.104	0.0224
Nitrites	0.0003	0.0

While there is a noticeable increase in the albuminoid and free ammonia, the chlorides and the nitrates, it is questionable if the increase is sufficient to be considered an obstacle in the way of recirculation. With water at 4 cents per thousand gallons and the central steam at 25 lb. square inch pressure at $1.05 per 1,000 lb. of condensate, the cost of treatment for the first and second period was $15.71 per day, as compared with $2.56 for the third period. This latter figure includes the interest and depreciation on the sterilizers.

The conclusions which we may safely draw from this study are:

1. That a high turnover rate and uni-

form distribution around the pool are most desirable features in swimming pool treatment.

2. That a bacteriological standard is indispensable in judging the condition of a pool, and should be used to check up any method of treatment employed.

3. That the supplying of a high grade of water to a well designed pool in large quantities and wasting to sewer will give a fair bacteriological result but is uneconomical in cost.

4. That sterilization by ultraviolet rays of swimming pool water in a recirculation system properly designed and operated gives a water in the pool which compares favorably with the government standard for drinking water.

□

DENTAL WORK AS A PROPHYLACTIC MEASURE IN IMPROVING THE PHYSICAL CONDITION OF EMPLOYEES

THADDEUS P. HYATT, D.D.S.

Dental Director, Metropolitan Life Insurance Company; Chairman, Oral Hygiene Committee of Greater New York

Read before the Industrial Hygiene Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 18, 1921

THE relation of dental defects to systemic conditions has been very thoroughly investigated and written about during the past few years. As is usual with the advent of new ideas, two schools of thought were quickly developed.

One school advocated extremely radical procedures, such as the ruthless extraction of all dental organs open to the slightest suspicion; the other school, ultra conservative, refused to accept the evidence shown by the remarkable restoration to health of many persons, after dental infection had been removed.

We must not allow the battle smoke of this hotly contested controversy regarding dental infection to blind us to the more important consideration of the part played in health or illness by unclean and unsanitary mouths.

It should be obvious to all that if pure water and clean wholesome food are really important factors for health, it is highly desirable to maintain the purity of the water and the wholesomeness of the food until it reaches the digestive apparatus of the individual, where it will be changed into a form that will be assimilated easily and thus sustain life and health.

It is here that the importance of mouth hygiene comes in. Of what avail is it to put pure wholesome food into a mouth filled with the decomposing debris of previous meals—of a mouth with diseased or broken down teeth?

Should it be surprising, then, that a procedure which brings about a continued clean and hygienic condition of the mouth should result in an improved physical well-being?

Careful and scientific investigation by Professor Gies, and Professor Kligler of Columbia University, shows that there is a reduction in number of at least 495 million bacteria per mm. in a fairly clean mouth as compared with a dirty one. This did not take into consideration a clean mouth.

It is safe to say the bacteria found in a clean mouth are practically harmless, while the bacteria that grow and multiply in a dirty mouth become virulent and dangerous. The long continued presence of bacterial masses in and around the teeth bring about inflammation of the gum tissues. Normal, healthy gums are practically impervious to bacterial invasion. But inflamed gums become open gateways for the entrance of harmful bacterial life into the blood-stream of the

body. Professor Jordan in "General Bacteriology" says:

"The portal by which bacteria gain entrance to the human body is of great importance in determining whether or not disease shall occur. Typhoid bacilli rubbed into the abraded skin may give rise to no reaction of importance, while the same microörganisms, if swallowed, may cause fatal infection. Conversely, virulent streptococci, when swallowed, may cause no harmful effects, while the same bacteria rubbed into the skin may give rise to a severe reaction."

The question of gum condition is therefore of great importance, as the human mouth always contains a large number of streptococci, and streptoccocus infection is made possible when the soft tissues of the mouth become badly inflamed.

Periodical prophylactic dental treatment must necessarily include X-ray examination, for it is only by the aid of the X-ray that we are enabled to ascertain the presence of abnormal conditions surrounding the roots of teeth.

In the Metropolitan Life Insurance Company's dental clinic, two cleansings of the mouth are given each year and X-ray examinations made of all teeth having crowns, bridges, or teeth with non-vital pulps. The work has been continued for a sufficient time to show certain results. Those who have come regularly twice a year since 1915 have the highest per cent of clean mouths and the lowest per cent of unclean mouths. Furthermore, the percentage of clean mouths has increased year by year and the percentage of unclean mouths has decreased year by year. This is true of all classes. A previously published table* illustrates this important fact.

Taking the figures of Professor Gies and Professor Kligler showing the reduction in the number of bacteria in fairly clean mouths as compared with unclean mouths, we shall readily see that there probably has been a very great reduction in the number of bacteria in the mouth of the employees examined at the Metropolitan Life Insurance Company's clinic.

*AMERICAN JOURNAL OF PUBLIC HEALTH, Vol. xi, No. 8, p. 740, August, 1921.

This fact may be accountable for the following rule issued by the president of the Company in 1919, making dental examination a requirement:

"The services rendered by the dental division since its establishment in 1915 have been so curative of impaired health conditions, and so permanently helpful to the employees who have taken advantage of the opportunities offered, that henceforth every home office employee will be required to undergo examination and cleansing of the teeth in the home office dental division twice a year. If the service of the family dentist is desired rather than that of the home office dentist, such examination and cleansings by him will be accepted, but they must be procured without expense to the Company and the employee must furnish a satisfactory certificate from him that the required work has been done."

(Signed) HALEY FISKE,
President.

The X-ray examination has likewise greatly helped in the improvement of the health and efficiency of the employees.

While we have not as yet had the opportunity to work this out upon a large scale, the results obtained in several cases may prove of value to those interested in welfare work.

Case 1. A man, forty-two years of age, suffered from anemia. Spent one year at the Company's sanatorium. No improvement. In April, 1916, two infected teeth were extracted and in April, 1917, one infected tooth was extracted. From that time on he had no further trouble. In fact in June, 1917, he entered the United States Army and came through with flying colors.

Case 2. A woman, forty-four years of age, suffered from neuritis, headaches, rheumatism and infected teeth. She lost eight weeks from work in the summer of 1916. In June four infected teeth were extracted and she has had no trouble since.

Case 3. A man, fifty-two years of age,

suffered attacks of pain like gall stones or gall bladder inflammation. In October, 1917, twenty-one infected teeth were extracted and since then he has had no return of the attacks.

Case 4. A woman, twenty-nine years of age, suffered from headaches, neuralgia for years, colds, fatigue, poor appetite, insomnia, loss of weight and infected teeth. She spent one year at the Company's sanatorium and made slow improvement. In January, 1917, seventeen teeth were extracted and antrum curetted. From that time she gained rapidly in health and is now an unusually healthy young woman.

Case 5. A woman, forty-seven years old, suffered from neuritis, palsy, tuberculosis and infected teeth. During 1916 she lost forty-one weeks from work. In March, 1917, she had seven teeth extracted. Since then the attacks of neuritis have been relieved.

Case 6. A man, fifty-eight years of age, suffered from lumbago, rheumatism and bad teeth. In 1916 he lost twelve weeks from work. In June, 1916, he had pyorrhea treatment and the root canals of devital teeth were filled. All the conditions are better.

Case 7. A man aged forty-one suffered from neuritis, grippe, loss of appetite and bad teeth. He lost five weeks from work in 1917 and one week in 1919. In September, 1917, the infected teeth and roots were extracted and all symptoms of neuritis disappeared and his appetite improved.

Case 8. A young woman suffered from blurring of vision of her left eye. No cause was found in the eye itself. Two badly decayed teeth and two infected teeth were extracted during November, 1918. Two granulomas found and both buccal roots opened directly into the antrum. By January 8, 1919, the trouble had all cleared up.

Case 9. A man of fifty years of age suffered from neuritis for three or four years. He was never free from pain. In February, 1919, two infected teeth were extracted and after three weeks had lapsed all pain from neuritis had ceased.

Case 10. A man of forty years of age had eleven infected teeth. From 1910 he had suffered from a general run-down condition and considerable abnormality of the heart. In April, 1918, he had the infection removed and from that time has enjoyed perfect health.

Some other interesting figures secured in connection with X-ray work are the following:

One thousand charts of cases where there were no teeth with non-vital pulps were picked out at random, no attention being paid to the medical records. The same number were picked out among those who did have one or more teeth with non-vital pulps and which showed radiographic indication of a changed condition about root ends. While the number is too small to deduce any dogmatic conclusions, the increase of systemic disturbances is sufficiently large to indicate that dental conditions are important factors to be considered in all health work.

There is one symptom that has not been recorded, and which should be recorded in all future figures of this nature. We find that while some employees may suffer from headache, and others not, fatigue is almost always present in every case.

	Patients without Dental Infection	Patients with Dental Infection	Shows % Increase
Neuralgia	3.8	8.3	18.4
Headache	1.9	3.2	68.4
Nervousness	1.7	4.5	64.7
Colds and nasal fossa	19.8	23.6	19.2
Furuncles	2.4	4.5	87.5
Abscess and skin trouble	2.6	4.5	73.1

In conclusion permit me to say that in my opinion no welfare work for industrial employees is complete nor can it be fully efficient which does not include regular and periodical prophylactic dental treatment, and I base my opinion upon the reasons and figures given in this paper.

DIPHTHERIA CONTROL

B. E. ROBERTS, M. D.

Epidemiologist, State Department of Health, Albany, New York; formerly Health Officer, Waterbury, Connecticut

Read before the Public Health Administration Section of the American Public Health Association at the Fiftieth Annual Meeting, New York City, November 15, 1921

WATERBURY is an industrial city of approximately 100,000 population, a large proportion of which is foreign-born, or of foreign parentage.

Previous to 1920 Waterbury had the unfortunate distinction of having the highest average death-rate from diphtheria of the large cities of Connecticut.

TABLE I

Mortality Rates from Diphtheria and Croup, per 100,000 Population, for the Ten-year Period 1910-1919. Compiled from Reports of the State Department of Health.

	Bridgeport	Hartford	New Haven	Waterbury
Average	22.7	24.3	15.7	27.3
Highest	34.5	41.6	23.5	43.5
Lowest	14.0	12.2	9.3	15.6

An examination of Table I shows that Waterbury not only had the highest average rate, but also did not reach a lower rate than 15.6 during the ten-year period.

In the middle of the summer of 1920 certain important changes were made in the organization of the Department of Public Health. A full-time health officer and two full-time bacteriologists, all non-political appointments, were substituted for the two part-time local physicians previously employed in these capacities on a political basis.

It was found that in spite of the high diphtheria mortality no efforts had been made to locate carriers, and that the release of cases had been left to the judgment of the patient's physician, who often took no cultures even from the patient, and practically never from other members of the household.

The important changes in the organization of the Department of Public Health were completed on August 1, 1920. One of the first steps after this was to present the diphtheria situation at a meeting of the local medical society, laying especial stress on the need of giving antitoxin immediately in suspicious cases, without waiting for the result of a culture, and of reporting such cases at once by telephone. The physicians have, on the whole, coöperated admirably. Their coöperation is greatly facilitated by the fact that a supply of antitoxin is available for them at all times, day or night, in the laboratory or in the police station. The antitoxin is obtained free from the State Department of Health and is furnished free to the physician.

The Department nurses were instructed in the technique of taking both nose and throat cultures. They were directed to take cultures from all members of the household as soon as possible after a case is reported. The patient and all carriers found are isolated in the same manner. Before release two successive negative cultures, taken at least twenty-four hours apart, are obtained from the patients and the carriers. Negative cultures are also obtained from the other members of the household before release. At least two negative cultures are therefore obtained from every member of the household. We have found practically the same number of carriers as cases.

The Department school nurses have taken special precautions to secure cultures from school children with suspicious throats. Where diphtheria has occurred within two weeks in different households having children who attend the same school, cultures have

been taken from all the children in the grades affected.

It is perhaps well to mention at this point that for the year 1921 the appropriations for public-health work were increased approximately 50 per cent, and the number of nurses was increased from seven to fourteen. Another point of interest is that no isolation hospital was used in controlling the disease. All cases were isolated in the home with the exception of a very few where the diagnosis was first made in one of the local hospitals.

For the year ending July 31, 1921, the diphtheria mortality rates were as follows:

TABLE II

Bridgeport	Hartford	New Haven	Waterbury
20.3	19.0	9.7	5.3

A glance at the tables given shows that the mortality rate from diphtheria in Waterbury reached a very low point for the year when intensive methods were first used for the control of the disease. The rate was just about one-third of the lowest rate during the previous ten years, and about one-half of the lowest rate in the three other large cities of the state. In other words, of forty-four comparable rates in eleven years for the four largest cities of Connecticut, this one rate for Waterbury was by far the lowest.

While it is a well recognized fact that we should not jump at conclusions from short-time variations in mortality rates, the remarkable drop which has occurred for Waterbury, coincident with a change in methods of control, seems sufficiently significant to merit attention. A caution is indicated for those public-health workers who, in their zeal for carrying on toxin-antitoxin immunization, may neglect to use their utmost efforts to control the disease by the discovery and isolation of cases and carriers. To reach our goal of complete eradication of diphtheria, universal immunization of infants and preschool children, as well as school children, will probably be necessary. Until we are able to do this, let us not forget the much more simple and easily adopted methods of controlling those who may spread the infection.

□

Isolation, Its Value and Limitations.—During the past thirty or forty years the results of the attempts at isolation (meaning the cutting of communication between the sick and the well) have been disappointing. It is true that, with our greatly increased means of communication, contagious disease would probably have increased vastly, and that we owe much to isolation in that the incidence of these diseases has remained nearly stationary. It is possible, too, that isolation has decreased the virulence of some diseases. Meanwhile, though, smallpox is nearly as prevalent as diphtheria.

Probably no health department has money enough to do all that needs to be done to control communicable diseases. It is necessary, therefore, to decide as to what shall be left undone, and to concentrate efforts where they will do the most good. Chicken pox, German measles and mumps can well be neglected, since they are so negligible as a cause of death. It is unwise to spend much money for the isolation of such diseases as influenza, pneumonia and whooping cough, since there is no evidence that isolation can in the least control them.

In those cases where isolation is an effective means of preventing disease, efforts should be directed toward (1) a more vigorous search for foci of infection, (2) a better supervision of cases and contacts, and (3) securing better coöperation by making restrictive measures as lenient and as effective as possible.

The most effective isolation is the hospital; the most effective means of securing home isolation is by the daily visit of a nurse. What is needed is not more rigorous isolation but the isolation of more persons.—C. V. Chapin, *The Public Health Journal* (Toronto), January, 1922.

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A HEALTH PUBLICITY PROJECT

In this issue are published symposia on "Motion Pictures" and "How to Further Progress in Health Education and Publicity," which contain the main points of the discussions on these topics in the sessions of the provisional Health Education and Publicity Section at the Fiftieth Annual Meeting.

This material is admittedly very informal and sketchy, more in the nature of suggestion than of a carefully worked out program. It contains ideas which can be adopted and utilized to advantage, however, by many health workers whose special task it is to bring to the favorable attention of the general public by the printed word, lectures, graphic media, the motion picture, or otherwise, the message of public health and preventive medicine in any of its myriad forms.

Specifically, the Section had before it for consideration the proposal made by Mr. Marcus (in Session II). In order that this proposal may not be lost in the shuffle following the meeting, we are taking this opportunity to place it before the Association at large in order that health officials, municipal and state, may coöperate in following out its suggestions. The proposal contemplates:

1. That officials should choose one particular audience or group in their communities to whom to "sell" public health. This group may be the school-teachers, physicians and nurses, labor unions, mothers and housewives—any group of like interests. The business men's group was used for illustration, or narrowing it still further, the Rotary Clubs.

2. That a program of publicity to reach this group should be laid out for a definite period—say six months or one year—and that an endeavor should be made to state the message in as many different and as effective forms as can be adapted to the audience in question.

3. That at the end of this period the officials check up their work to see how far short it has fallen of its maximum possibilities; further that records of the work, including copies of all publicity material used, be sent for filing and further research and evaluation to some central headquarters.

This program is simple, even elementary. It does not attempt to take up the many complex questions which will arise, such, for instance, as the application of psychological principles to the preparation of publicity material for a given group. It is designed simply to make a start on developing methods and standards in a field which is as yet almost virgin soil. The JOURNAL believes it worth the while of health workers to coöperate on this project, and offers to receive material or plans for transmission to such clearing-house as may later be decided upon by the Health Education Section.

THE STATUS QUO IN THE NARCOTIC SITUATION

With federal and state legislatures in constant turmoil over proposals for the control of narcotic drug addiction, with scientific and medical opinion divided in clamant majority and minority groups over the "disease-vs.-habit" issue, with administrative bodies, both professional and lay, including state and municipal health departments, federal bureaus, and special commissions, at loggerheads,—all over a question which has in it apparently more power to call forth violent emotional reactions than any other scientific subject,—he would indeed be a bold man who would venture any final or dogmatic judgment on this vexed situation. Speaking therapeutically, a prescription of more light and less heat is emphatically indicated.

The American Public Health Association as a whole has expressed itself definitely in favor of such a policy in adopting the Report of the Committee on Narcotic Drug Addiction presented at the Fiftieth Annual Meeting (JOURNAL, December, 1921, pp. 1066ff). In so doing it has taken a fundamental stand to which all lovers of the truth can rally, for it should be unthinkable that a moot scientific question should be decided by a professional body without exhaustive and critical investigation. If sound administrative measures must wait upon such research, it is better that they should wait than that we should not have the research. Practically, both must proceed simultaneously, with the proviso that the one does not outrun the warrant of the other.

The point of view of the Committee was further supported in a resolution sponsored by Dr. Peter H. Bryce, which, for lack of time, was not presented to the Association, but was submitted to the Resolutions Committee and approved by that Committee and the Governing Council:

WHEREAS, present federal legislation and rules and regulations founded thereon are based on views of a group of men who hold that narcotic drug addiction, in the absence of chronic painful or incurable condition, is not a true disease but rather a vicious appetite or morbid desire; and

WHEREAS, there is another group at least equally numerous and of unquestioned integrity and ability who hold that there is an abundance of medical and other scientific evidence pointing to the conclusion that narcotic drug addiction is in itself a true pathological condition demanding in every instance individual study and care in its handling; and

WHEREAS, legislative acts and other restrictive measures based on either set of views must fail if the opposing views be the correct ones and must also inevitably cause an immense amount of needless suffering and still further extension of illicit traffic; and

WHEREAS, both of these groups, as well as many other groups and individuals, realize the vital importance of finding the proper solution of the problem of narcotic drug addiction; therefore be it

RESOLVED, that it is the sense of this Association that there should be a complete and impartial investigation of the entire subject of narcotic drug addiction and its control.

A Congressional investigation of the entire narcotic question, including both the medical phases and the operation of the Harrison Law and state laws, is a possibility if H. Res. 258, introduced in January by Representative Lester D. Volk of New York, is favorably acted upon. Though there is usually some political animus in investigations of this nature, exception can scarcely be taken to the main recommendation of the resolution, which calls for a select committee of fifteen, to contain all the physicians in the House, and to have access to all known data on the question.

The Committee on Drug Addictions of the Bureau of Social Hygiene is meanwhile continuing its independent investigation. Out of all these inquiries it would seem that some authentic and constructive findings should come. One word to the wise in all these groups may not be out of place in this JOURNAL. Liaison between all the investigations should most certainly be maintained, the resources of each should be at the disposal of the others, and active coöperation should be encouraged, so far as it is consistent with a policy of "no entanglements" that would hamper the scientific impartiality of the results.

LOOKING TOWARD THE CLEVELAND MEETING

Members of the Association who wish to be on the program for the Fifty-first Annual Meeting at Cleveland, October 16-19, would do well to give a thought to planning at this date. Get in touch with the program chairman of your section. (He is indicated with an asterisk in the list of officers on advertising page iii of each issue of the JOURNAL.) A meeting of the Central Program Committee was held in Washington March 15, at which general rules governing the program were adopted. Your program chairman can give you more exact particulars as to requirements.

Papers must be submitted by July 1 in order to be guaranteed consideration by the Program Committee. Abstracts or outlines of about 200 words should accompany all papers.

Chairmen of all committees should communicate with their committeemen at once and arrange for the consideration of their reports.

More complete announcements will be made in later issues of the JOURNAL.

ASSOCIATION NEWS

LIST OF NEW MEMBERS

Proposed for Election to the A. P. H. A. February 1 to February 28, inclusive.
Names of Sponsors are set in **Bold Face Type.**
Names of New Members are set in Light Face Type.

CALIFORNIA

William C. Hassler, M. D., San Francisco, Calif.
John E. Snodgrass, M. D., 1101 Flood Building, San Francisco, Calif., Full-time public-health worker.

MISSOURI

Thomas Parran, Jr., M. D., Jefferson City, Mo.
Ernest E. Huber, M. D., 309 So. Spanish St., Cape Girardeau, Mo.

NEW MEXICO

Mr. Harold F. Gray, Santa Fe, New Mexico.
O. C. West, M. D., City Hall, Albuquerque, New Mexico. Full-time County Health Officer.

NEW YORK

Prof. C.-E. A. Winslow, New Haven, Conn.
Mrs. Mary W. Coutant, Barnard College, Columbia University, New York, N. Y., Instructor in Botany, Barnard College.

EMPLOYMENT BUREAU

HELP WANTED

Help wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the 10th of each month for publication on the 20th. Mail to New York office as early as possible.

In answering keyed advertisements, please mail replies separately to editorial office in New York City. In replying give age, professional training, salary requirements, previous positions held and three or more references.

United States Civil Service Examinations are announced for administrative assistants (chief clerks, matériel officer, clinical registrar and personnel officer). Examinations will be held on April 5, 1922. Applicants should apply for Form 1312 for full information. Examinations are also announced for reconstruction aide and reconstruction assistant (a. physiotherapy; b. occupational therapy). Applications will be received until further notice. Applicants should apply for Form 1312, stating the title of the examination desired.

Wanted: Chemist thoroughly experienced in analyzing food products, such as cider vinegar, prepared mustard, vanilla extract, spices, etc. State full particulars first letter, experience, age, married or single, salary expected to start. Address FOOD LABORATORY, care of this JOURNAL, New York address.

Wanted: Competent physician to take position as full-time county health officer in Middle Western state. Salary for first year, $3,000.00 and expenses. Address P. T. 476, care of this JOURNAL, New York address.

Wanted: Assistant bacteriologist who has had experience in municipal or state health laboratories. Skilled technician also considered. State education, training, experience and minimum salary in first letter. Address S. F. T. 480, care of this JOURNAL, New York address.

POSITIONS WANTED

Positions wanted announcements will be carried in this column. The charge is $2 per insertion. Copy should be received at this office by the 10th of the month.

Wanted: Position with state or municipal health department. Seven years of varied public-health experience, including government, state, and municipal connections in Europe, South America, Southern and Middle Western States. Organizing and administrative ability. Particularly interested in child hygiene. Three years in present position at salary of $3,000. Complete data promptly submitted. Address B. R. 203, care this JOURNAL, New York address.

Wanted: Position by bacteriologist in commercial, public-health, or research laboratory. University graduate. Experience in state, army and clinical laboratories. Desires position with good opportunity. Address K. R. 204, care of this JOURNAL, New York address.

BOOKS AND REPORTS REVIEWED

Epidemiology and Public Health. *Vol. I. Respiratory Infections. A Text and Reference Book for Physicians, Medical Students and Health Workers in Three Volumes. Victor C. Vaughan, M.D., LL.D., Ann Arbor, Michigan; assisted by Henry F. Vaughan, M.S., Dr. P. H., Detroit, Michigan; and George T. Palmer, M.S., Dr. P. H., Detroit, Michigan. C. V. Mosby Company, St. Louis,* 1922, *pp.* 688. *Price,* $9.00 *per volume.*

Our anticipations have been realized. At last we have a modern and monumental work on epidemiology. Vaughan has placed his great storehouse of knowledge and experience in sanitation and hygiene in the public archives. With characteristic courage, he has attacked the most difficult group of diseases—the respiratory infections—in the first volume, which has just appeared from the press.

Epidemiology is variously conceived by epidemiologists and is treated from different angles by students of the subject. Vaughan defines epidemiology as "the science of epidemic diseases, and these may appear in a given community at any time, singly or by the hundreds." From this point of view, epidemiology deals as much with a single case of infection as with a pandemic. This is justified by the consideration that "every case of infectious disease should be regarded as a possible source of an epidemic." The epidemiologist must trace the etiologic agent from the sick man through its often long and tortuous course to the one who becomes infected. The field of epidemiology has therefore broadened until it includes everything that pertains to epidemic disease. The epidemiologist must know etiology, symptomatology and pathology. Heretofore, works on epidemiology have dealt mainly with the history of past epidemics. We must still study the natural history of disease, because from this source we uncover information of the greatest value. Vaughan very properly gives the historic background to each one of the diseases discussed, always, however, with an effort to make proper application of the historic facts.

Vaughan's great and unique experience is detailed in the preface, where his varied services in civil and military life and his contributions to science are casually mentioned. His vivid account of his youthful impressions in the country shows what a revolution in the control of disease has taken place during the course of a single lifetime. In this conquest Vaughan has taken a distinguished part over a period of forty busy years. Probably no one else has ever had such a background for a work on epidemiology. Vaughan's personal experiences are reflected in almost every page of the book. The wonderful changes that have taken place during the span of his own observations is indicated by the measures taken by our military authorities at Santiago during the Spanish-American War. Thus, Vaughan sems contrite when he naively remarks: "What would you think of an epidemiologist who would burn a village for the purpose of ending yellow fever?" A sense of humor is indicated in the reflection that probably many infected mosquitoes lost their lives in that conflagration.

We regard the present work as Vaughan's *chef d'oeuvre,* although in saying this we are not unmindful of his fundamental contributions to the science of hygiene and the art of sanitation. The style is masterful, technical terms are avoided, the preface reads like a romance, and the introduction deserves reprinting and broadcasting. The felicity of expression and clearness of diction adds much to the charm of the work. While Vaughan glories in the conquests of preventive medicine, he cautiously warns that, "We have not passed the age of pestilence." There has been no armistice signed between man and disease. As an instance, he cites the recent appalling and destructive epidemic of influenza.

Originality is shown in the opening chapter which deals with the "Albuminal Diseases," a new term coined by Vaughan, whose contributions to the subject entitle him to name this conception. The body of the book before us is taken up with separate discussions of the prevalent respiratory infections: the pneumonias, measles, smallpox, diphtheria, scarlet fever, mumps, whooping cough, influenza, tuberculosis, leprosy, cerebrospinal meningitis, poliomyelitis and glanders. One might question including leprosy in the respiratory infections, especially as Vaughan states that there is reason for the belief that the bacillus

finds its entrance through wounds on the surface. Any classification of communicable infections cannot be final or satisfactory on account of our incomplete knowledge of many diseases, and a more or less arbitrary classification is therefore justified. We would also like to have more concerning "Weather and Disease," which is discussed in Chapter XX. Perhaps in a subsequent volume, climatology will again be taken up from different standpoints. Such criticisms are captious and do not detract from the book, which is a masterpiece.

The publishers have done their part well. The paper, print and illustrations are excellent. The usefulness of the volume would be greatly helped by a more extended index.

M. J. ROSENAU, M. D.

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Sewerage and Sewage Disposal, a Text-Book. *Metcalf and Eddy. McGraw-Hill Book Company, New York, 1922. Pp. 589. Price, $5.00.*

Sewerage and Sewage Treatment. *Professor Harold E. Babbitt, University of Illinois. John Wiley & Sons, Inc., New York, 1922. Pp. 531. Price, $5.00.*

The appearance of two new text-books on the subjects of sewerage and sewage disposal deserves more than passing notice. Metcalf and Eddy's book is virtually an abridgement of their three-volume treatise on *American Sewerage Practice* which was published in 1914, 1915 and 1916. Those familiar with the larger work will feel at home with the new volume. Professor Babbitt's book is written by an experienced teacher and has more of the earmarks of a college text-book, with numbered paragraphs and with the materials arranged especially for instructional purposes. The reviewer has been interested in making a comparative study of these two books.

In the first place, it may be said that both of them are decidedly better than any other text-books on this subject now available. Metcalf and Eddy's book seems to be better adapted to advanced students and graduate courses, while Professor Babbitt's book has some advantages for the teaching of the subject in a more elementary way to undergraduates. It covers several subjects not taken up by Metcalf and Eddy, such as pumping, contracts and specifications, the design of the sewer ring, sewer maintenance, and government control with respect to disposal by dilution. The number of pages devoted directly to the subject of sewerage is about the same in the two books.

Metcalf and Eddy's book is especially strong on the subject of sewage disposal, the space devoted to this subject being nearly twice as great as that in Professor Babbitt's book. Among the subjects discussed in Metcalf and Eddy's book but omitted from Professor Babbitt's are: methods of sampling sewage; details of temperature and currents in the disposal of sewage by dilution; certain sludge removal devices; foreign experiences in sewage irrigation; and cost keeping. Professor Babbitt describes such experimental methods as the Mills acid process and electrolytic devices. The price of the two books is the same.

In connection with the hydraulics of sewers, Metcalf and Eddy give numerous inserted folded diagrams, whereas Professor Babbitt uses alignment diagrams. The preference between the two is perhaps a matter of personal choice. The reviewer prefers the diagrams but on the other hand realizes the inconvenience of the folded sheets. Attention should be called to the exceptionally complete index in Metcalf and Eddy's book.

In comparing these new text-books with those published more than ten years ago, it is interesting to notice the much greater space given to the subject of sewage treatment, a fact which shows the progress of the art.

GEORGE C. WHIPPLE.

✣

As attention has been focussed on problems of public health by many circumstances during the past decade, the need of starting any program of health betterment with the young has been more and more clearly recognized. Searching for the causes of adult unfitness, we have discovered malnutrition of children. In 1911, malnutrition in the New York City schools was reported as involving 2.5 per cent of the children examined; in 1920, a report of 17.7 per cent bears witness to closer scrutiny of the children.

The Bureau of Educational Experiments has been a pioneer in studying systematically the attack upon the problem of malnutrition in a large public school, and has now summarized its work at Public School 64, Manhattan, during the years 1917-1920, in a volume which bears the stamp of thoroughness and sincerity. To one who has

lived through similar pioneer experiments in this new sort of educational work for children, the book presents a fascinating mirror of difficulties met and overcome in the organization and conduct of nutrition classes; of unfolding knowledge of the nature of the problem, resulting in the development of improved methods of procedure. At every stage careful statistical analyses aim to reveal the true achievements and evaluate them correctly. As a result of this experiment, the need of greater knowledge at many points in this field is stressed, and a program for research is outlined, involving standards of growth, causal factors of underweightness and their relationship to the response to be expected from the individual child, and the connections between malnutrition and mental defectiveness.

Equally interesting are the suggestions for an educational program. One is cheered by the recognition that "so-called normal children and children approximating currently accepted norms may benefit by the procedure [nutrition education] in proportion to their superior condition." One also appreciates the justice of the statements that "evaluation of success and failure for the child must be measured by his coöperation and by individual gains in fitness rather than by his comparative gain in relation to that of his fellows," and that "the child must be held responsible only for his coöperation in such activities as his environment affords"; and subscribes heartily to the statement that "the success of the school program of health education is dependent on a serious program of education in the community."

Analysis of the health program makes clear that there is a corrective and a preventive side—the former originating within the province of the physician, the latter essentially a teacher's task. It is gratifying to see the appreciation of educational skill as an essential in this program, and one regrets that the nutritional side of the experiment receives less emphasis. The whole program would have been enriched by the contributions of a professional worker in this field. This failure to appreciate one of the most important sources of strength in a nutrition program seems to the writer the most serious flaw in this very excellent work.

MARY SWARTZ ROSE, Ph.D.

Health Education and the Nutrition Class. *Jean Lee Hunt, Buford J. Johnson, Ph.D., and Edith M. Lincoln, M.D. New York. E. P. Dutton & Co., 1921. Pp. 281. Price, $3.50.*

✣

Diathermy; Its Production and Uses In Medicine and Surgery. *Elkin P. Cumberbatch, M. A., B. M. (Oxon) M. R. C. P. Medical Officer in Charge, Electrical Department, St. Bartholomew's Hospital, etc. Vice-President, Section of Electrotherapeutics, Royal Society of Medicine. St. Louis. C. V. Mosby Co., 1921. Pp. 195. Cloth, price, $3.50.*

This book is indeed a guide to those who desire to learn the principles and practice of a method of treatment which has proved its value in medicine and surgery.

Diathermy, the actual generation of heat in the body, due to the resistance of the body to the passage of an electric current, is a procedure which should interest not only the surgeon, since this method is now generally utilized in the treatment of malignancy, but also the internist, because of its acknowledged effect on metabolism.

This book by Elkin P. Cumberbatch is a clear and interesting exposition of the subject. The technical description of the high frequency currents, their method of production, and the construction of the diathermy machine is simple, clear and concise. The methods of application and the use of the accessory apparatus are gone into in detail. The application of deep heating to medical diseases, to such conditions as deficient physiological activity, sciatic and brachial neuritis, arteriosclerosis, paralysis agitans, hypertension, etc., is given in a sane and scientific manner. The use of endothermy by dessication and coagulation in the treatment of surgical conditions is fully described, as are also the varieties of electrodes used, the method of applying the electrodes and the manner of determining when the result has been achieved.

The large experience of the author permits him to speak with authority on the many mooted questions regarding the use of this method. The book is written in simple, clear and understandable language and can be thoroughly recommended to those interested in this electrotherapeutic method.

I. SETH HIRSCH, M. D.

PUBLIC HEALTH NOTES

Abstracts by D. Greene, M. D., James A. Tobey and Homer N. Calver.

Child Health in Czecho-Slovakia.—A report has just been received of the work of the child health centers in Czecho-Slovakia. These health centers have been established by the American Red Cross in coöperation with the Ministry of Health, the Ministry of Social Welfare, and voluntary organizations interested in the health of children. Prof. Selskar M. Gunn, formerly editor of the Journal, is technical advisor to the ministry. By the end of December, 1921, twenty-one child health centers had been established in various provinces of the Republic. A total of 21,822 children were registered and examined in these centers during the last six months' period of last year. For the same period there were 46,224 visits of these children to the various health centers. Nearly all of the cases are medical cases, as only 6,900 are reported without symptoms, and 3,353 are additionally reported as "social cases." These health centers are operated jointly by native and foreign personnel. The work is developed with the idea of eventually turning over the operation of them to the Czecho-Slovakian officials and voluntary agencies, utilizing the local doctors for carrying on the work. (*H. N. C.*)

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School Medical Service in England.—The annual report of the chief medical officer shows the extent to which the school medical service has grown in a few years. When the school medical service was started three disadvantages were anticipated: that it would pauperize the parent and destroy the sense of parental responsibility, that it would impose an unremunerative burden on the ratepayer and that it would have a detrimental effect on the work of the private physician. According to the report none of these has been realized. Parental responsibility has been stimulated, the investment is yielding a high interest, and medical treatment has been so safeguarded as to secure the support of the profession. The school medical service is not duplicating but supplementing and enhancing the work of the private physician. An important indirect effect of the service is that it has taught the educationist that children must be handled as individuals and not in bulk. A growing interest of teachers and parents in the health of children is evident.—London Letter, *Jour. Amer. Med. Assoc.*, Feb. 4, 1922, 361. (*D. G.*)

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Influence of Weather Conditions on Infant Morbidity.—The author reports the results of an investigation into the sickness occurrence among infants in the cities of York and Homestead, Pa., with particular reference to the relations of weather conditions to infantile diarrhea. The findings in York for the months July to December are summarized in the following table:

	Total Cases	Sick Cases No.	Per cent
Breast-fed (throughout period of observation)	346	7	2.0
Breast-fed and artificially fed throughout period of observation	74	..	..
Breast-fed (method of feeding changed during period of observation)	365	26	7.1
Artificially fed (throughout period of observation	307	42	13.7
Total	1,092	75	6.9

The author makes the interesting suggestion that it would seem entirely feasible to develop this line of inquiry in the direction of applied meteorology to the point of forecasting weather conditions favorable to an epidemic outbreak of infantile diarrhea.—F. L. Hoffman, *N. Y. Medical Journal*, Feb. 1, 1922, 145. (*D. G.*)

✣

The Wassermann Reaction in Young Children.—A group of Jewish institutional children varying in age from a few days to 6 years in one of the large child-caring institutions in New York were tested for syphilis. Many had a family history or pathological conditions which would warrant a suspicion of syphilis. Eight hundred and thirty Wassermann tests on 472 children were performed by the laboratories of the Department of Health of New York City as well as that of the State. Without exception they proved to be negative. Three hundred and ninety-nine

luetin tests were made on 350 of these children—321 reported negatively, 3 positively and 26 were doubtful. The Wassermann tests on all children showing doubtful reactions were repeatedly negative. The 3 children showing positive luetin reactions showed at no time any clinical evidence of lues, and gave negative Wassermann reactions. Among the children tested 22.4 per cent gave a history of insanity in one or both parents, 10.8 per cent were illegitimate, 6.5 per cent were mentally backward, 35.8 per cent showed various pathological conditions. In spite of these circumstances they all gave negative Wassermann reactions. Contrary to the general opinion regarding the incidence of syphilis in child-caring institutions, these results lead the authors to conclude that among the children of the Jewish poor of New York City syphilis is an exceedingly rare disease.—L. H. Barenberg and P. Rosenberg, *Archives of Pediatrics*, Jan., 1922, 93. (*D.G.*)

✣

B. Welchii a Possible Cause of Intestinal Disease.—The author describes a small epidemic of intestinal disease caused by the B. Welchii which was isolated from the public water supply. He notes that at the present time there is divided opinion among sanitary engineers and water plant operators regarding the pathogenicity or sanitary significance of this organism in public water supplies. He raises the point that the determination whether or not B. Welchii is harmful is a medical problem and until qualified experts having a medical training have thoroughly studied the effects of the organism on the human body we should be cautious about accepting as potable a water which contains the organisms in dangerous quantities.—H. B. Larner, *Jour. Amer. Med. Assoc.*, Jan. 28, 1922, 276. (*D.G.*)

✣

National Health Insurance in England.—Briefly commenting on the recent proposition to repeal the Health Insurance Act in England which has now been in force for nine years, the *Journal of American Medical Association* says editorially: "As we stated editorially some months ago, while compulsory health insurance may be a good thing in England, conditions in this country at this time are such that there is neither a need nor a desire for it. It is not worth while to take a nauseous medicine to cure a disease that does not exist." That opinion is now confirmed; for the unavoidable conclusion from the entire mass of evidence is that health insurance, even in England, after being in force for nearly ten years, is still an experiment, and a costly and by no means a universally satisfactory experiment at that. It has not bettered public-health conditions. The chief arguments of its proponents in this country—that its adoption would improve both public and individual health conditions—have not in any way been substantiated by the trial of the plan in England.—*Amer. Med. Assoc.*, Nov. 19, 1921, 1656. (*D.G.*)

✣

Referendum on Alcohol in the Practice of Medicine.—In order to secure the views of a representative portion of the medical profession on the use of alcohol in the practice of medicine, a questionnaire was sent by the American Medical Association to more than one-third (53,900) of the physicians of the United States. Replies were received from 31,115, or 58 per cent. This represents 21.5 per cent of the physicians of the country. A summary of the final report follows:

1. Physicians of the United States are almost equally divided on the question as to whether whisky is a necessary therapeutic agent in the practice of medicine; about 26 per cent consider beer necessary; about 22 per cent consider wine necessary.

2. More physicians of cities over 50,000 in population consider alcoholic beverages necessary than do those in smaller cities and in rural communities.

3. Physicians of the North Atlantic and South Atlantic States are more favorable to the therapeutic use of whisky than are those in the remainder of the country.

4. The large majority of physicians who consider whisky necessary believe it valuable in pneumonia, influenza and other acute infectious diseases.

5. A considerable proportion of those who consider whisky of value utilize it in the treatment of diseases incident to old age and general debility, in convalescence, diabetes, heart failure and shock.

6. Beer is used therapeutically chiefly in lactation, convalescence, old age, and for the treatment of debility, dyspepsia and anemia.

7. Wine is used chiefly for the same conditions as is beer, but also as a substitute for whisky.

8. About one-fourth of the physicians stated that they had seen instances of unnecessary suffering or death which they attributed to the enforcement of prohibition laws, including cases due to whisky of illicit manufacture or of poor quality.

9. Many physicians are against restriction in either the drugs prescribed, in the number of prescriptions or in the amount of drugs prescribed.

10. Only 2 per cent of the physicians replying believed that physicians should be permitted to write more than 100 prescriptions in three months.

11. Many physicians say that limitation of the number of prescriptions does not provide for epidemics, and encourages the use of the limit by many.

12. Many physicians say that limitation to a definite minimum quantity of alcoholic beverages over certain periods is a serious interference with treatment of conditions in which greater quantities are required.

13. A large majority of physicians believe that some regulation or restriction should be placed on the prescribing of alcoholic liquors.

14. A large number of physicians favor such regulations as are under the Harrison Narcotic Law.

15. The experience of physicians indicates that certain state laws are too stringent relative to the provision of pure alcohol for laboratory and surgical purposes.

16. Many physicians have not informed themselves as to their privileges under the present regulations relative to the securing of pure alcohol or of whisky for office use.

17. The lack of uniformity in state and federal laws complicates the formulation of methods for adequately solving the problem of the medicinal supply of alcoholic liquors.

18. Physicians through their practice have observed extensive violations of the present prohibition regulations in their communities.

19. The majority of physicians would welcome a change in prohibition regulations which would take from them the burden of distribution of alcoholic liquors.

20. Many physicians believe that the provision of whisky and alcohol for medicinal purposes by the government in sealed packages at a fixed price with control of prescriptions similar to that of the Harrison Narcotic Law will solve the problem of relation of physicians to the enforcement of prohibition.

An English View of Public Health Activities.—A writer in the *Journal of the Royal Sanitary Institute* divides public-health work into two classes: (1) sanitary engineering, (2) the work of the health department. In considering the latter, he states that according to a compilation of the expenditures of the Medical Officers of Health of County Boroughs in England during 1919-20, out of every £100 expended on health work (not including water supply, sewage disposal, scavenging, etc.) £26 was spent on work against infectious diseases, mostly hospital maintenance; £30 on antituberculosis work; £13 on maternity and child welfare; £5 on venereal diseases; £9 school medical service; £2 on food control (though this figure does not include the cost of the abattoir in cases where this is controlled by a markets' committee); £15 on administration and work on general sanitation. The writer also assigns values to various branches of public-health work. A resume of these values is given in the Public Health Engineering Abstracts of the United States Public Health Service of February 25, 1922. (*J. A. T.*)

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What a Governor Thinks About Health.—"In the minds of the girls and boys of to-day lies the future of all public-health work," Governor J. B. A. Robertson of Oklahoma said at the banquet of health workers held as the closing event of the Fourth Annual Public Health Conference, October 12, 1921. "The older people will just have to die, for there is little chance of converting them to support the work, but the younger generations must be taught the principles of personal health. To-day, every school in Oklahoma is filled with literature sent out by the Health Department of the state. The subject of health is now the most popular theme in our schools. The work of the Association has just begun and its future is so great that I cannot predict the immensity of it."—*Oklahoma Health Champion,* November, 1921. (*J. A. T.*)

✣

Scarlet Fever "Return" Cases.—To prevent "return" cases as far as possible at Ealing, great care is taken in dismissing scarlet fever patients from the isolation hospital, particular attention being paid to the nose, ear and submaxillary glands, enlargement of which seems to indicate active infection. Dr. Thos. Orr, M. O. H., reports that after dismissal from the hospital all cases are visited at their homes by

the health visitors at least twice during the first fortnight, and if there is any sign of the ears or nose being affected, further isolation is advised and further exclusion from school directed, repeated visits being made until the condition of the nose or ears is such as to warrant the patient being allowed freedom to mix with other children. It often happens that a patient on reaching home develops a nasal discharge, and the precautions indicated are desirable to prevent infection should the nasal secretions be still infective. During last year the health visitors made 113 first visits and 111 subsequent visits to scarlet fever convalescents after their return home.—*Medical Officer*, Jan. 7, 1922, 8. (*D. G.*)

✣

Window-Cleaning for Consumptives.—The question of finding a suitable occupation for tuberculosis patients is one which greatly occupies the minds of tuberculosis officers and care committees. Too often whatever work is found is only temporary in character, depending, perhaps, on the season of the year or upon the prevalence of some local industry. It is interesting to note that Dr. W. A. Daley, M. O. H. of Blackburn, refers in his annual report to the fact that for some years past the Charity Organization Society in that town has maintained a window cleaning department in which ex-sanatorium patients are employed. Such an occupation is eminently suited to the needs of the consumptive, being of the open-air type and unassociated with any undue muscular effort. Other authorities might well follow the lead of Blackburn in this respect.—*Medical Officer*, Dec. 3, 1921, 244. (*D. G.*)

✣

Vassar Undergraduates Plan to Take Up Public-Health Work.—A canvass of 581 students of Vassar who contemplate professional futures has indicated that only 14 of the number are planning to take up public-health work. Twelve expressed a preference for nursing, 36 for medicine, and 178 for social service. The largest number, 179, hope to go into literary work. Other preferences are business, 118; art, 96; teaching, 92; psychology, 73; dramatics, 57; music, 53; physical education, 52; science and mathematics, 39; agriculture, 35; household economics, 30; religious work, 19; library work, 17; architecture, 15; law, 11, and research work, 10.—*Better Times*, February, 1922. (*J. A. T.*)

Influenza in the United States.—Telegraphic reports to Surgeon General Cumming of the U. S. Public Health Service show that 8,768 cases of influenza were reported to the health officers of thirty states during the week ended February 4, 1922. Of these, 5,731 cases were reported in New York City. The population of these states is about 70,000,000, making 12.5 cases per 100,000 population. These figures are higher than corresponding figures for the previous week and also higher than those for the corresponding week of last year. During the corresponding week of 1920, more than 225,000 cases were reported by the state health officials of these states. During the week the number of reported cases of influenza increased somewhat over the greater part of the country, as is expected at this season of the year, but the increase was especially noticeable in New York state, New England and New Jersey. (*J. A. T.*)

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From Beer to Baking Science.—The Wahl-Henius Institute in Chicago, originally established to carry on scientific research work in connection with the brewing industry, has been purchased by the American Institute of Baking. The executive offices of the Institute have been moved from Minneapolis to the new headquarters.

Since experimental and research investigations in the brewing and baking industries are closely allied, the equipment of the Wahl-Henius Institute will serve admirably the purposes of the American Institute.—*Northwestern Miller*, October 26, 1921.

✣

Ozone in the St. Louis Schools.—After preliminary studies and tests made on a number of persons with ozone concentration many times that for ventilation, ozone machines have been installed in the air ducts of a number of the school buildings of St. Louis. The first machine was installed in the O'Fallon School in 1919. The effects on the comfort and health of teachers and pupils were so marked that in the summer of 1920 ozone machines were installed in thirteen old schools and put in the specifications of three new ones. In most instances the principals and teachers were not apprised of the change in the ventilation, in order that psychology might not figure in the results. The most beneficial results were noticeable in a few weeks. Teachers volunteered the information that pale and anemic

children had gained in weight and that the new ventilation relieved the fatigue of the day's work.

Hundreds of visitors have visited the schools where this ventilation has been installed. To those who are not fully convinced of the merits of ozone in ventilation, an invitation is extended to visit the schools of St. Louis and make such tests as may seem desirable where the facilities for such are so large.—*Jour. Am. Soc. of Heat.-Vent. Engineers*, January, 1922.

✣

Conference on the Education of Sanitarians.—A conference on the future of public health in the United States and the education of sanitarians was held in Washington in the American Red Cross Building on March 14 and 15, 1922, under the auspices of the United States Public Health Service. The conference members included presidents of universities; deans and directors of schools of public health, hygiene, and medicine; professors of public health and other educators; state and city health officers; representatives of voluntary organizations and of the government. The gathering was a most distinguished one, probably the most notable which has ever come together to discuss public health. About two hundred registrants and guests were in attendance.

While all the papers presented were extremely varied and of too great length even to abstract here, a number of important and salient points were brought out which are worthy of mention. All of the papers presented will be later issued in pamphlet form by the Public Health Service.

That public health is a very diverse and extensive subject seemed generally agreed. It is not a branch of medicine, but is closely allied and parallel to it. Present medical curricula would have to undergo marked changes in order to be adapted to the requirements of public-health training. Medical students are inclined to look with disfavor on sanitarians and medical faculties themselves need a broader conception of sanitary science.

The present need for sanitarians is not being met. The quality of the men who are taking up the subject must be raised. Their future must be made more attractive by better remuneration and more secure tenure of office. The public must likewise be educated to appreciate the importance of public health. While the education of future sanitarians is of paramount importance, that of those now employed must not be neglected.

Perhaps one of the keynote thoughts of the conference was that sanitarians must have the human element. The "general practitioner of public health" was emphasized as essential. Leadership and vision were expressed as qualities well worth development.

The committee on recommendations reported only one recommendation, namely, that the Surgeon General of the United States Public Health Service be empowered to appoint a committee of eight, this committee to enlarge itself to fifteen, and consisting of Dr. C. C. Bass, New Orleans; Dr. W. H. Howell, Baltimore; Dr. A. J. McLaughlin, Washington; Dr. E. O. Jordan, Chicago; Dr. M. J. Rosenau, Boston; Dr. R. L. Wilbur, Palo Alto, Cal.; Dr. Ennion Williams, Richmond, Va.; Dr. C.-E. A. Winslow, New Haven, Conn. The committee is to take up whatever questions it sees fit and whatever further action for future conferences may seem wise in order to continue the activities that this conference has started.

A vote of thanks was given to the Public Health Service in appreciation of its initiative in calling the meeting and for the admirable way in which it was conducted. The conference was a most successful one and the results of the brilliant discussions should have an important effect on the future of public health in this country.

✣

Community Aspects of the Tuberculosis Problem.—A series of three articles by Dr. Philip P. Jacobs has appeared in the *Public Health Nurse*, dealing with the community aspects of the tuberculosis problem under the titles "Finding the Cases," "Adequate Care," and "Adequate Control." The discussion is based on the principle that tuberculosis is a local, not a state or national problem, though its state and interstate aspects are recognized. Dr. Jacobs asserts that the efficiency of the public-health nurse may be measured to a certain extent by the number of tuberculosis cases that she discovers, giving the results of the Framingham experiment as proof of the assertion that only a small percentage of active

tuberculosis cases are reported in the average community.

The care of early, advanced, and discharged cases and suspects is discussed. The advice of an expert medical consultant is valuable and sanitorium care when it is possible.

Under "Adequate Control," Dr. Jacobs urges the prevention of infection by the segregation and supervision of every known focus of infection. Foci of infection fall into certain definite categories, viz., bovine, incipient, moderately advanced and far advanced human carriers.

The series of articles is invaluable to public-health nurses everywhere, particularly if they are working in localities where physicians are not yet awake to the opportunities of combating tuberculosis.

✣

A Significant Public Health Message.—"If we review the public-health work of the country during the past year, the prospects of the new year should encourage all of us who work in the field of preventive medicine and public health. Marked as the year was by a period of profound economic depression, social unrest and financial stringency, I think one thing upon which the public-health workers are to be congratulated is that in the face of drastic retrenchment in all other respects, public-health funds have suffered the least of all appropriations and outlays.

"This can mean but one thing—the dependence of national prosperity upon national health has ceased to be submerged in the public consciousness, and the necessity for adequate health protection is now a generally accepted fact—a fact backed by public opinion and which taxpayers are willing to finance."—Hugh S. Cummings, *The Nation's Health*, January 15, 1922.

✣

The Place of the Nutrition Worker in the Health Program.—The nutritional factor is a large and essential factor in the public-health program. It has not yet received the recognition, however, in practice, which its importance suggests. Its chief obstacle to overcome is ignorance, and its function is, therefore, largely educational. Education is a slow, difficult and expensive process, but it is, nevertheless, much swifter, much easier and much less expensive than is the process of readjusting economic conditions. The school, including the elementary school, the secondary school, the college and the university, is, or can be, the most important instrument for overcoming universal ignorance. The hospital and special institution is another potential, though not fully realized, educational force, but the important supplementary agencies of public and voluntary health organizations must not be overlooked as serious factors in this situation. The nutrition worker should be an element in every staff of teachers or of field workers, and our training schools must see to it that more adequate provision is made for field training of nutrition workers with this in view.—Bailey B. Burritt, general director, New York Association for Improving the Condition of the Poor, *Journal of Home Economics*, Vol. XIII, No. 12, p. 579, December, 1921.

✣

Health Education of Children.—A high standard of general health is to be secured permanently only through the training of children in personal hygiene. They are teachable in health matters as in everything else. Of course the real place for such teaching is the home, but it is astonishing how the home has failed in this matter as a whole. There are entirely too many children between the ages of 8 and 12 years drinking coffee, consuming quantities of sweets between meal times, so that no appetitie is left for plain nourishing foods, and who go to bed so late that it is hard to arouse them in the morning in time to get a hasty breakfast and hurry to school, with no time to think of matters of health such as daily bowel movement. This state of affairs is sure to affect their studies as well as their general health.

There are 20 per cent of the pupils of the United States who are below average weight for height, and a much larger percentage show physical defects which hamper growth.

Because as a whole the home has failed to teach health matters, the school is now doing a great deal to fill the tremendous need. In the past health teaching in the schools has been rather of a theoretical nature, and besides it has not been made interesting. To reach children the teaching should be of a positive nature rather than a negative, that is, not just to know what not to do, but to actually do things and report on action.

Competitions as to height and weight seem to reach more people with less cost and trouble than any other method, for this reaches the

parents. Weights are understandable and can be grasped by the simplest minds. In some schools scales are kept and weights taken at the beginning of the school year and monthly thereafter. Each child is anxious to maintain his standing and to make progress. Often the teacher asks for comments from the children as to how they gained or lost weight. This method calls forth the child's everlasting "why," and when he sees what irregularity does to him he is anxious not to have a loss again. Through the children's interest the coöperation of the parents is secured because of the competitive spirit.

The main thing is to have a teacher who is interested and interesting, one who appreciates the value of health and all that leads to that end.

In some cases it is necessary to form special nutrition classes where children are particularly below par. Here they are subjected to a full examination as to the cause, whether it is diet, careless health habits, or some existing disease, but in most cases it comes down to food and habits. Weekly visits are arranged so that progress may be reported.

The idea is to teach children to look upon health as a thing of joy, a source of happiness, an essential to success, and a real beginning has been made along these lines.—L. Emmett Holt, M. D., *International Journal of Public Health*, November-December, 1921.

✣

"The Jewels of Cornelia."—This is a health play in one scene. It has adapted the age old story of Cornelia's jewels to present day life.

Cornelia, a modern mother, displays greater interest in her valuable collection of jewels than in her two children. She buys a diamond lavaliere from a jeweler who comes to her house, because he assures her that it belonged to Cornelia of ancient Rome. While out of the room for a few moments, a robber enters and steals all her other gems. A vision comes to her in her anguish, and announces that she is that Cornelia of old Rome, one time owner of the diamond. She summons various jewels which she saw just outside of the door of Cornelia, the mother. They are Ruby, Emerald, Pearl, Opal, Topaz, Amethyst and Turquoise, each one of whom represents some phase of good health. "I am the warm glow of good health," says Ruby. "I am the flush in rosy cheeks, kissed by the sun and the wind."

Finally, two diamonds are shown to Cornelia. She perceives that they are her children. The robber, who says he is Bad Health, returns and once more tries to steal them from her. The policeman gets him, however, because he is Officer Knowledge. When the real policeman enters with the real thief and Cornelia and the phantom jewels have vanished, Cornelia, the mother, realizes that her children are, after all, the true jewels of her life. She puts away the other gems as only baubles and clasps her children to her heart.—"The Jewels of Cornelia," by James A. Tobey, *Journal of the Outdoor Life*, Feb., 1922.

✣

Annual Report Issued.—A pamphlet has recently been issued containing the annual report of the Mental Hygiene Committee of the State Charities Aid Association, and the annual report of the State Charities Aid Association to the State Hospital Commission. The Mental Hygiene Committee reports the establishment of four new clinics, and an increased attendance at state hospital clinics of 34 per cent over the previous year. All measures before the Legislature relating to mental disease and mental defect were studied and appropriate action taken. Two bills which were opposed were defeated in the Legislature. One of these proposed to amend the Insanity Law by providing for a trial by jury for the insane before commitment. The other would have changed the qualifications of the superintendents of the state hospitals and the medical officer of the State Hospital Commission by waiving the requirement for experience in an institution for the treatment of mental diseases.

The State Charities Association reports further overcrowding in the thirteen civil state hospitals, in spite of a large increase in the number of patients on parole. In emphasizing the necessity for more preventive work, it again urges the establishment of state psychopathic hospitals.

The Association supported the proposal for the establishment by the Federal Government and the state of New York jointly of a special military hospital for mentally disabled veterans.

✣

Newark Public Health Institute.—One of the most important of the series of institutes being held this year by the United States

Public Health Service is that to be held at Newark, New Jersey, April 10-15. Owing to the proximity of New York and other leading medical and health centers, the program is exceptionally attractive and contains among others, the following high authorities: Dr. C. V. Chapin on Communicable Diseases; Dr. Haven Emerson, on Administrative Problems; Dr. J. A. Fordyce on Syphilis and Dr. Hugh Young on Gonorrhea; M. N. Baker on Sewage; Dr. Simon Flexner on Meningitis; Dr. Hideyo Noguchi on Spirochetes; Dr. Michael Davis, Jr., on Health Centers; Dr. Abraham Zingher on Diphtheria; and Dr. W. C. White on Tuberculosis. The Annual Conference of State and Local Health Officials of New Jersey will be held in conjunction with the Institute, and a Women's Social Hygiene Conference will follow it. Dr. Charles V. Craster is acting chairman of the Institute, Dr. A. Clark Hunt, director, and Dr. J. C. Price, secretary of the State Board of Health.

✣

Motion Pictures as Used in Health Education.—There are three distinctly different kinds of instructional health motion pictures. One variety is what may be called the propaganda film. It is in part educational, but it is prepared for the general adult audience and not for pupils. Several such films have been prepared by the Red Cross and they have a distinct usefulness.

The second type of picture is the drama which presents with its plot and human interest, certain health information. These pictures are for the theatrical circuit and they have great possibilities for service. They are difficult to present, because if they contain too much health instruction the action is slowed up and the picture fails as an amusement feature. However, there are a few successful pictures of this type.

The third and most important type of health picture is the strictly educational film. This is the type of film which is rapidly being introduced into the public schools. The most important development in this field has been the organization of the Society for Visual Education which has undertaken the production of series of school films in history, economics, civics, geography, nature study and physics, as well as in health and sanitation. Through these films, health information is presented in a novel manner—so novel that the films are very popular. They are presented only through educational or health authorities, and a theatre itself cannot present them without the consent and coöperation of the health officer. Through utilizing this new educational force in presenting health information to both adults and children, much is being accomplished in stimulating a desire for healthful living and creating a vital health conscience. —C. E. Turner, *The Nation's Health*, January 15, 1922.

✣

The Organization of Research in the Federal Service.—The subject matter is handled under three general heads: (1) What is the function of research in the government service? (2) How can such research be best organized? (3) What is the relation of such research, but appropriates money for research of which the Food and Drug Act is an example?

(1) Congress appropriates practically no money for the purpose of carrying out fundamental research. It appropriates money almost exclusively for the solution of some specific practical problem, which, if solved, can be evaluated in dollars and cents. But the primary function of the Federal Government with reference to research is to carry on fundamental research whether it has immediate practical value or not. Government and university investigators are the people who should furnish new fundamental principles to be applied in industry.

(2) In view of the fact that the Federal Government does not carry on fundamental research, but appropriate money for research for immediate, practical, and specific purposes, it is a mistake to have in the government service a bureau, such as the Bureau of Chemistry, and other divisions which were organized by fundamental sciences. Organization of research in the government should be by commodities and by fields of work. Any bureau which has a practical problem set for it by Congress must be left free to employ any kind of scientists for the solution of the problem that may be necessary.

(3) The administration of laws which involve the control of commodities and require scientists in their enforcement, of which the Food and Drugs Act is a type, if they are not to be made odious must be enforced in those departments that are familiar with and doing constructive and coöperative work with the industry that produces these com-

modities. If that is not done, the administration of such laws would be non-constructive and they might become odious.—C. L. Alsberg, *Official Monthly Bulletin Interstate Cotton Seed Crushers' Association*, July, 1921.

✚

Archives of Occupational Therapy.—Occupational therapy, one of the most recent of medical specialties to gain a place for itself in the regime of the modern hospital and preventorium, now has its own technical and professional journal in the *Archives of Occupational Therapy*, the first issue of which was published in February. It is under the editorship of Dr. William Rush Dunton, Jr., of Sheppard and Enoch Pratt Hospital, Towson, Md., and is published bimonthly by the Williams and Wilkins Company, Baltimore, at $5.00 a year. Included in its board of associate editors and the list of contributors are many of the most distinguished authorities and specialists in the field, including Drs. Frederic Brush, R. Tait McKenzie, R. Tunstall Taylor, Jules Amar, H. A. Pattison, and Mrs. Eleanor Clarke Slagle. The leading article of the first issue is a scholarly treatment of "The Philosophy of Occupational Therapy," by Professor Adolf Meyer, of Johns Hopkins University. If the contents and mechanical excellence of the *Archives* maintain their initial standard, it cannot help but make a distinct place for itself among American scientific journals.

✚

Baking Technology.—The rapid advance of the American baking industry in scientific research in recent months has been largely due to the work of the American Institute of Baking, of which Dr. H. E. Barnard is director. The industry now has its own monthly journal, *Baking Technology*, edited by I. K. Russell, and published by the Institute at 1135 Fullerton Ave., Chicago. It publishes the official notices of the American Bakers Association, interprets for bakers the scientific investigations of the Institute laboratories, stressing insistently and continuously the necessity of the highest nutritional and sanitary standards. The first number, published in January, contains an article by Dr. S. C. Prescott of the Massachusetts Institute of Technology on "Bakery Sanitation," and gives prominence to a number of bread "score-cards," by means of which both the bakery and the loaf can be rated in comparison with the best ideals of the industry.

LEGISLATION—FEDERAL

(From bi-weekly reports of the National Health Council, Jan. 17-Feb. 15)

PROGRESS ON MATTERS PREVIOUSLY CONSIDERED

S. 2708. Medical and Hospital Supplies for Russian Relief.—This measure, after passing the Senate and the House, was signed by the President on January 19, 1922 and became a law. The bill as originally passed in the Senate provided for the transfer of all surplus medical and hospital supplies in the hands of the War Department to the American Committee for Russian Relief. It was amended in the House of Representatives by limiting the amount to be transferred to $4,000,000 in value. Authority for the transfer was conferred upon the President instead of the Secretary of War and the time in which the proposed transfer is to be made was limited to a period of four months. These amendments were agreed to by the Senate on January 17.

H. R. 9724. Appropriations for Treasury Department.—Passed the House on January 6, 1922, and the Senate on January 20, 1922, with a few amendments, then went to conference. Passed the Senate February 11. Included in the measure are appropriations for the U. S. Public Health Service, for repair work on four government hospitals, and for cost of maintenance of quarantine stations, all of which was outlined in National Health Council Statement No. 18 (A. J. P. H., March, 1922). Some minor amendments affecting public health were added in the Senate. Included was a clause providing that the U. S. Public Health Service should inspect aliens entering the country. Eleven thousand dollars was appropriated for the repair of the quarantine station on the Columbia River, Astoria, Oregon.

H. R. 8928. Government Salary Reclassification. Report in Senate. The Public Health Service Nurses.—The Lehlbach bill, which passed the House on December 15, 1921, (See A. J. P. H., February and March) was reported with amendments from the Committee on Civil Service of the Senate on February 3, 1922, and referred to the Committee on Appropriations. Several important amendments were made. As has been previously pointed out, it was deemed unsatisfactory to have included provisions concerning salaries in the Public Health Service. Accordingly, the commissioned

personnel of the Public Health Service has been exempted from the term "position" as used in the bill and so salaries of these officers will not be affected.

Another important amendment was to include nurses in the professional and scientific service. In the original bill nurses had been placed with housekeepers in the institutional service. In its report the Committee said, "Upon further study it has seemed entirely practicable that nurses, whose duties require them to pursue a professional or scientific training equivalent to that represented by graduation from a college or university of recognized standing, shall be included in the professional service, and that other nurses who are not required by their duties to have attained full professional standing shall be classified in the subprofessional service." The Senate also increased the compensation of all the six grades in the professional and scientific service. The annual increases are as follows: Grade 1, $180; Grade 2, $240; Grade 3, $300; Grade 4, $420; Grade 5, $540, and Grade 6, $600. The subprofessional service salaries were increased, but the inspectional service remains unchanged.

H. R. 9775. Reorganization of the Public Health Service. Recommendations of the Secretary of the Treasury.—Secretary of the Treasury A. W. Mellon has written to the House Committee on Interstate and Foreign Commerce, which has this bill before it, making a number of recommendations. He suggests that, instead of transferring 550 reserve officers to the regular corps that only 350 such officers be transferred. The reason given for this is because it is not now practicable to determine the number of officers which will be permanently required. The clause giving the Surgeon General the same pay as the Surgeon General of the Army is also recommended to be stricken out, in accordance with a suggestion from the Surgeon General of the Public Health Service. This bill is outlined in Statement No. 18, p. 2 (A. J. P. H., March). No corps of nurses, dietitians or reconstruction aids is provided in it.

H. R. 9490. Medical and Hospital Service for Coast and Geodetic Survey. Introduced by Representative Winslow, December 12, 1921.—Favorably reported to the House by the Committee on Interstate and Foreign Commerce, February 10, 1922.—By the terms of this bill (See A. J. P. H., February) as amended by the House Committee, the U. S. Public Health Service is directed at the discretion of the Secretary of the Treasury to furnish medical, surgical, and hospital service, including supplies, to the officers and seamen of the Coast and Geodetic Survey. When practicable, medical officers are to be designated to serve on the vessels of the Coast and Geodetic Survey.

NEW LEGISLATION

S. 3113. Reduction in the Number of Officers of the Army. Introduced by Senator Wadsworth, February 3, 1922, and prepared, according to his announcement in the Senate, by General Pershing, Chief of Staff of the Army. Referred to the Committee on Military Affairs.—The proposal in this bill to reduce the commissioned personnel of the army from 17,000 to 13,000 repeals all other laws and fixes a definite number of officers in the medical department of the army, as follows:

Medical Corps	1,053
Dental Corps	177
Veterinary Corps	144
Medical Administrative Corps	81
Total Officers, Medical Department	1,455

Although the measure stops promotions in other branches of the military establishment for a definite period of time, there is a clause which specifically states that promotions in the medical department shall continue without change. The bill, however, stops the appointments of new officers in the medical department until the number of officers has been reduced to the total prescribed.

H. R. 4. Pensions for Nurses of the Spanish-American War. Passed the House of Representatives February 1, 1922. Referred to the Committee on Pensions in the Senate, February 3, 1922.—Besides fixing pensions for widows and orphans of veterans, this bill provides that all women employed by the Surgeon General of the Army as nurses, under contract or otherwise, during the war with Spain, the Philippine insurrection, or the Chinese Boxer rebellion, rendering actual service, shall be entitled to a pension of $20 per month.

H. R. 9981. Appropriations for Executive and other Independent Bureaus of Government. Introduced by Representative Wood of Indiana, January 18, 1922. Favorably reported to the House by the Committee on Appropriations, January 18, 1922. Taken up for debate on January 19, 1922—Included in the appropriations of the independent bureaus, commissions, boards and officers of the government covered in this measure is the U. S. Veterans' Bureau. The items follow:

(a) Expenses of offices, sub-offices and all costs in their operation, $25,815,942.

(b) Compensation for death and disability for both the army and the navy, $160,000,000.

(c) Medical and hospital service, dispensary, nursing, after care, examinations, etc., $64,658,680.

(d) Vocational rehabilitation, $127,000,000.

One of the stipulations of the measure is that the director of the U. S. Veterans' Bureau shall report to Congress every two weeks the list of salaries over $2,000 in the Bureau. Another proviso would prevent the establishment of a vocational training school at any other army cantonment except Camp Sherman, Ohio.

Also in the bill is an appropriation of $2,641,940 for the Employees' Compensation Commission.

This bill passed the House January 30, 1922, and the Senate February 11, 1922, with the following changes relating to the U. S. Veterans' Bureau:

1. Complete expenses incidental to operation of the Bureau raised from $25,815,942 to $34,970,974.

2. Compensation for disabled sailors and soldiers decreased from $160,000,000 to $145,000,000, with stipulation that not exceeding $15,000,000 of any unexpended balance may be used for this purpose.

3. Vocational rehabilitation appropriation is increased from $127,000,000 to $146,409,188.80.

H. R. 10028. Concentration of Distilled Liquor in a Small Number of Warehouses. Introduced by Representative Green of Iowa, January 20, 1922. Favorably reported by the House by the Committee on Ways and Means, January 26, 1922.—This measure is of considerable interest to the medical profession of the country, as it is in line with some of the proposals made by physicians, who dispense liquor by prescription upon permits. These proposals have included the concentration of the distilled liquor supply of the country in a small number of places and its preparation in packages of a pint in size so that prescriptions can be readily filled. This measure, while not providing for small packages, does stipulate that the distilled spirits supply now deposited in 304 bonded warehouses in the United States be removed and concentrated in 20 warehouses from which it can be withdrawn for medicinal purposes.

H. R. 10075; S. 3120. Deportation of Aliens Convicted of Traffic in Drugs or Narcotics. Introduced by Representative McArthur, January 23, 1922. Referred to the Committee on Immigration and Naturalization. Introduced by Senator McNary, February 3, 1922. Referred to the Committee on Immigration.—This bill provides that any alien after entry in the United States, who shall be convicted of any offense against any federal, state, or municipal drug and narcotic law shall, after completing his sentence, be deported by the Secretary of Labor. The bill also prohibits the return of the deported offender to the United States.

H. R. 10031. Revision of Pensions of the Civil War. Introduced by Representative Brooks, January 20, 1922. Referred to the Committee on Invalid Pensions.—A section of this proposed act gives all army nurses, male or female, who served in the civil war, a pension at the rate of $50 per month.

S. 3078. To Provide for the Free Transmission Through the Mails of Certain Publications for the Blind.—Introduced by Mr. Frelinghuysen, January 25, 1922. Referred to Committee on Post Offices and Post Roads.

LEGISLATION—STATE

(From bi-weekly reports of the United States Public Health Service with the cooperation of the National Health Council, February, 1922. These abstracts are necessarily very brief. Persons interested in obtaining complete copies of bills are referred to the various secretaries of states.)

Kentucky

1. Pure Food, Drugs and Laboratories. S. 93. This bill prohibits and defines adul-

teration and misbranding of foods and drugs and requires the State Board of Health to examine samples, adopt standards of purity, and report violations to the Commonwealth's attorney or attorney of a local government for prosecution. The State Board of Health shall also inspect food production, and do laboratory examinations in connection with disease control.

2. Tuberculosis. (a) H. 131. This bill would allow cities and counties to issue bonds in order to provide tuberculosis hospitals.

(b) S. 137. This bill would make it unlawful for any tubercular person to teach in the public schools. A certificate showing freedom from this disease must be presented before taking examination as a teacher.

Maryland

1. State Bureau of Child Hygiene. H. 72. Adds a bureau of child hygiene to the five existing bureaus of the State Board of Health and outlines its duties.

Massachusetts

1. Dentists. H. 96, 97, 98. Dentists must register with city or town clerk of place of business. They may, after lawfully practicing for five years in another state, be registered without examination by paying fee of $25. They must conduct office under full name of owners of the practice.

2. Foods and Drugs. (a) H. 88. Fresh food fish to be graded and sold as (1) new fish, (2) fresh fish, (3) fish suitable only for splitting and salting or preserving.

(b) H. 365. Requires health department permit for manufacture of non-alcoholic beverages, inspection of premises with power to revoke permit, sanitary use and storage of materials, no refilling, and supervision by health department (state, except in Boston; there local).

(c) H. 599. Amends cold storage law, reducing period of allowable storage from twelve to six months, except longer period with consent of State Health Department.

(d) H. 745. Requires physical examination of food handlers on employment and every six months.

(e) H. 746. Requires local boards of health to make frequent inspections of places where food is kept for sale or storage—$100 fine for insanitary conditions, $200 for subsequent offenses.

(f) H. 748. Requires marking of quality, date of packing on sealed containers of foods.

(g) H. 956. Changes penalty of fine or imprisonment for unlawful possession of instrument for use of narcotic drugs to jail sentence of from 3 to 12 months. Same penalty for keeping a drug resort. Penalty of jail sentence from 3 months to 2½ years for unlawful possession of narcotics instead of fine or imprisonment.

3. Maternity. S. 259. Provides maternity benefits for pregnant women for one or more weeks, to be administered by the State Department of Public Health.

4. Medical Practice. (a) H. 598. Would license as "assistants in medicine" two-year medical students, to work under supervision of physicians. These "assistants" could sign birth certificates.

(b) H. 955. Amends law relating to registration of physicians by requiring a year's service as interne before such registration. The number of weeks required in a year of medical school would be reduced from 36 to 32. Premedical standards are fully set out.

5. School Hygiene. H. 601. Changes law requiring physical examinations of pupils in public schools from mandatory to permissive. Exempts children whose parents object.

6. State Government. H. 744. Department of Public Health directed to manufacture and distribute antirabetic serum.

7. Tuberculosis. H. 534. Requires marking of cows which have been tuberculin tested and transfer of records of reactors when sold.

8. Vaccination. (a) S. 130. Would exempt from vaccination children whose parents oppose it.

(b) S. 215. Allowing person vaccinated under direction of board of health to recover damages for any injury resulting therefrom.

(c) H. 1056. To eliminate requirement of a physician's certificate as to vaccination as prerequisite to admission to public schools.

New York

A. PROGRESS

("A. I." is Assembly; "S. I." Senate bills. "I" means the introductory number.)

1. Mental Hygiene. A. I. 139. Providing for a state hospital for mental diseases and appropriating $3,000,000 for it was substituted for the Senate bill and passed the Senate on January 31, 1922.

B. NEW BILLS

1. Birth Control. A. I. 424. To amend penal law concerning "information regarding the protection of maternity and infancy, otherwise known as birth control."

2. Chiropractic. S. I. 368. Provides for a board of chiropractic examiners, their duties, the licensing of chiropractors on examination, and their qualifications for taking it. A license would be issued without examination to those having practiced for one year prior to the passage of the act.

3. Dentistry. A. I. 490. Amends law. Lowers age of applicants for examination from twenty to nineteen years. Penalties are increased. Dental corporations ceasing to exist to lose their charters.

4. Food and Drugs. (a) S. I. 274. Amends farms and markets law by giving increased jurisdiction to local departments of public markets.

(b) S. I. 338; A. I. 401. Provides for control of possession, sale, prescribing, dispensing, dealing in and distribution of habit-forming drugs.

(c) A. I. 496. This is a 300-page bill making changes in the farms and markets law, the public-health law and the county law relating to matters within the jurisdiction of the department of farms and markets.

5. Garbage. (a) A. I. 409. Garbage and refuse not to be thrown in waters inhabited by game or food fish.

(b) A. I. 328. Garbage and rubbish not to be deposited on highways.

6. Mental Hygiene. (a) S. I. 451; A. I. 658. (Conc. Res.) Provides a commissioner on mental hygiene. Adds institutions for epileptics, idiots, feeble-minded and mentally defective to inspection list of commissioner.

(b) A. I. 493. Amends insanity law in relation to commitment of the insane.

7. Motion Pictures. A. I. 369. Requires that Commission "shall issue permits to films for educational purposes."

8. Municipal Health. S. I. 240. Compensation of local health officers is computed at ten cents per annum per inhabitant where less than 8,000 population. This bill would exclude inmates of state institutions from such computation.

9. State Government. (a) S. I. 399. Gives war veterans, including nurses, preference in civil service examinations.

(b) S. I. 449; A. I. 599. To reorganize state government. Include departments of health and mental hygiene.

10. Vivisection. S. I. 31; A. I. 353. To amend penal law by prohibiting experiments on living dogs.

Virginia

1. Tuberculosis. (a) S. 179. To provide a pavilion at Catawba and Piedmont Sanitoria for the care of young children with active tuberculosis infection.

(b) S. 180. To erect an infirmary for advanced cases of tuberculosis among the negro race.

(c) S. 182. To establish a field unit under the Bureau of Tuberculosis Education in the State Board of Health, and to maintain clinics for undernourished children.

2. Hotel Inspection. H. 12. This bill, transferring sanitary inspection of hotels from the State Health Department to the State Dairy and Food Commissioner, has passed the legislature.

STATE HEALTH NOTES—GENERAL

Arizona

Seven hundred and twenty-nine cases, representing 593 families, were under the care of the Maricopa County Antituberculosis Society and the free clinic during September, 1921. The report of the nurse in charge shows that in addition to the clinic work the nurses made 327 calls, while there was a total attendance of 313 patients at the clinics.

Florida

Tampa has just closed the most successful "Fair" in the history of the state.

Every food or drink-selling establishment had complied sedulously with sanitary regulations, and so far as the fiscal conditions permitted, the sanitation of all these establishments was excellent. The people and concessionaires were equally pleased with the improved condition, and Tampa feels that it has set a standard of sanitation for temporary eating concessions for the South.

Tampa's Health Department is less than a year old and endeavoring to bring conditions in this region up to the best standard of sanitation.

Illinois

The unexpected resignation of Dr. John Dill Robertson, health commissioner of Chicago, on February 1, is of special interest, owing to the importance of the post, and to Dr. Robertson's remarkable record during the seven years of his administration. Dr. Herman N. Bundesen, formerly epidemiologist of the Department, was at once appointed to the Commissionership by Mayor Thompson, on the recommendation of Dr. Robertson. It is understood that Dr. Robertson intends to develop a commercial organization for health education and publicity, utilizing health lectures, graphic methods, training schools for home nurses, health expositions, and other media for disseminating to the public throughout the nation a knowledge of health fundamentals.

In his letter of resignation to the Mayor, Dr. Robertson mentioned the following items among others in the record of accomplishment of the administration:

"Seven years ago the water supply of Chicago was not safeguarded. Numerous cases of typhoid fever were caused by contaminated water; to-day the water supply is completely chlorinated, and the typhoid fever incidence and typhoid fever deaths are the lowest of any large city in the world. The lowering of the morbidity and mortality from this disease represents a reduction of 87½ per cent during your term as Mayor.

"Seven years ago less than two-thirds of Chicago's milk supply was pasteurized; to-day all of it is pasteurized, except about two per cent, the production of which is supervised by the Chicago Milk Commission and is known as certified milk. In order to bring this condition about it was necessary for me to request you to rescind the milk licenses of more than one thousand dirty milk dealers. Not once did you fail to back up the Department of Health in its fight for safe milk for the babies of Chicago. The net result of your support is that there has not been a milk- or food-borne epidemic in Chicago since October 1, 1915. Prior to that time, from 1911 to 1915, there were nineteen such epidemics.

"A safe milk supply has not only helped to make it possible for us to record our low typhoid fever rate, but it has reduced the deaths in children under one year of age from one death in each 7.4 born to one death in each 12 born; in other words, has effected a saving of the lives of three hundred thousand babies each year.

"The reduction of an average of 366 deaths per year from scarlet fever under your administration, representing a decrease of approximately 70 per cent; the reduction in deaths from tuberculosis from twelve deaths per day as in 1915 to six per day as in 1921, could not have been made without your continuous support and aid in carrying out the policies of this Department.

"Chicago's death-rate for the year just passed was only eleven per thousand; in other words, it has now reached not only the lowest point ever attained, but probably about the lowest point possible of attainment.

"Ninety-nine per cent of the babies born in Chicago in 1921 were registered; in other words, complete birth registration has been accomplished.

"The records show that during your administration the Health Department has effected a saving of 21,250 lives from loss through the major contagious diseases, such as tuberculosis, typhoid fever, diphtheria, scarlet fever, pneumonia and measles. The Illinois legislature has placed a value of ten thousand dollars upon a human life as a measure of damages. At this value, the economic saving effected was $212,500,000.00, or about thirty times the total expense of operating the Health Department during that period of time. This does not take into account the saving from loss of time or the actual expense of sickness to the individual."

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According to an opinion recently handed down by the Attorney General, it is within the power of the State Department of Public Health to declare that a state of limited quarantine exists in any municipality where an epidemic of smallpox has appeared or threatens to develop and that under the terms of such limited quarantine it would be legal to require all persons about to travel on common carriers to produce evidences of protection against smallpox, either by reason of vaccination or of having had the disease. The opinion further states that the enforcement of such regulations can legally be required from local health authorities.

The opinion of the attorney general in this matter came as a result of a request from the state director of public health who

has some such action under contemplation because of lax quarantine conditions at certain points where smallpox has been more or less epidemic for the past few months.

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A mild epidemic of scarlet fever recently developed at the flying field near Rantoul, where more than 100 persons fell victims to the disease. Because a rather large percentage of the patients were adults, certain camp physicians felt inclined toward a diagnosis of influenza. At all events, the situation was serious enough to bring about the establishment of regular medical inspection of school children in Rantoul so that greater preventive protection is now afforded them against this, as well as all other communicable diseases.

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At a recent conference which was jointly participated in by the State Departments of Public Health and Agriculture and by the University of Illinois, an outline for a model ordinance governing the production and sale of milk for municipalities in the state was developed. The matter was left in the hands of a committee for final drafting and will be published as early as practical.

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At the request of local organizations, a new clinic for crippled children has been established by the State Department of Public Health at Kewanee. The clinic is conducted under the supervision of Dr. C. W. East and is supported through the coöperation of a committee of local physicians, the Rotary Club, the Red Cross and local health departments. This brings the total number of such clinics that are now in operation throughout the state up to twenty-five.

Kentucky

The Court of Appeals of Kentucky has decided that, under the statutes, the State Board of Health can forbid the furnishing by a company of impure water to a community on the ground that such water is a nuisance, but ' cannot direct the use of any particular method of purification.

Maine

After conference with leaders of representative groups of Maine men and women, the Maine Public Health Association has formulated and launched a three-year program of work which will meet the health needs of the state through the wise expenditure of time and money and through the prevention of duplication of effort.

Among the important elements of the program are:

Every community in the state to receive the services of a public-health nurse so that mothers will be intelligently advised and assisted in the care of self and child both before and after birth. Each nurse will also include in her daily work, beside nursing, proper feeding and care of the growing child, watching in her community for contagious diseases, home talks and public lectures on health matters before representative organizations, etc.

Every school child in the state enrolled as a Modern Health Crusader. This means teaching health habits by means of the child's love of pageantry and ceremony.

Development of industrial nursing in larger industrie in coöperation with the Associated Industries of Maine.

Continuation of post-graduate clinics for Maine physicians in coöperation with Maine Medical Association.

Educational campaign by which it is hoped to accomplish health talks in every local, social, fraternal, labor, commercial and civic organization in the state, by means of moving pictures, stereopticon slides, lectures, exhibits, distribution of literature, public speakers, etc. In developing this phase of the plan, active coöperation will maintain between the Maine Public Health Association and the State Department of Health, the Maine State Grange, the Maine State Federation of Labor, the Maine Department of the American Legion, the Maine State Federation of Women's Clubs and other state organizations.

Involved in the plan are a number of statewide campaigns directed specifically at definite causes of needless illness, suffering and unhappiness. These include:

A campaign for the control of cancer.

Continuation of the campaign for the eradication of tuberculosis.

A campaign for the conservation of the eyes, prevention of blindness, etc.

A campaign, first for the control and later for the eradication of social diseases.

A campaign for the development of mental hygiene.

A campaign for the strengthening of local health associations and committees.

A campaign for the protection of Maine babies, nearly 2,000 of whom die each year before they have had a birthday.

A campaign on the importance of proper care of the teeth.

Maine is now widely recognized as the playground of the nation. With the development of the Health Plan, it is predicted that this state will become renowned as the healthiest state in the Union.

Massachusetts

The Boston Tuberculosis Association has just completed a survey in tuberculosis in which the relationships of out-patient departments of hospitals to their patients were considered. It was found that a positive diagnosis of pulmonary tuberculosis received immediate attention. About ninety per cent of the patients receiving this diagnosis entered institutions very shortly thereafter, notification of cases to the City Health Department was prompt and complete and follow-up work by the public-health nurses was satisfactory. With other forms of tuberculosis, notification dropped to less than fifty per cent. With a "provisional" diagnosis of pulmonary tuberculosis, less interest was awakened. There was no one of the individuals thus diagnosed who returned to the original institution for further examination, although all were asked to do so. There was little systematic follow-up. The need of the return of such patients for further examination is shown by the fact that a scant third of these individuals were afterwards examined at other institutions or by private physicians, and of these two-thirds had in the meantime developed pulmonary tuberculosis. It is estimated that among the "provisionals" in this group, who have been lost to sight, there are 220 active cases at the present time, which a follow-up might have detected and cared for. It was found that examinations of contacts reached only about one-fifth of the entire number. These are individuals living in families in which there is an adult with consumption. The children of such families should be examined and cared for, for they are to a considerable extent the consumptives of the future. The statistics were assembled by Miss Bernice W. Billings, executive secretary of the Association. (J.R.)

Michigan

No one may now work for the State Department of Health who does not accept the principle of smallpox prevention by vaccination, according to a recent ruling, following development of smallpox among the unvaccinated children of one of the department's employees.

The father of the unvaccinated children, who it is alleged did not approve of vaccination, was employed in a position where he had an opportunity to learn something of the principles of preventive medicine, so that there was even less excuse than parents ordinarily have for failure to protect their children against a preventable disease such as smallpox.

Michigan reported 4,537 cases of smallpox in 1921, an excess of the number of cases reported by any of forty other states in the Union. The population is unusually susceptible to smallpox owing to negligence in carrying out vaccination. The disease has appeared in virulent form in some states and a wildfire epidemic which might kill its victims with seventeenth century fearlessness is entirely possible. It is, in fact, a probability which every health worker realizes and can only warn against by advising vaccination of every baby before reaching 18 months of age and vaccination of all persons who have not been vaccinated within the past five years.

✚

Communicable diseases attacked one out of every 56.4 persons in the state in 1921, compared to a ratio of one out of every 42.2 during the preceding year, according to the reports of the State Department of Health. This represents a decrease in reported cases of sickness from 88,179 in 1920 to 67,780 in 1921.

Six important diseases—measles, pneumonia, meningitis, syphilis, gonorrhea, and chancroid—show decreases totaling 20,399 cases over the preceding year. Seven diseases—diphtheria, poliomyelitis, scarlet fever, smallpox, tuberculosis, typhoid fever, and whooping cough—show increases amounting to 6,377 cases over their 1920 total.

The increase in infantile paralysis from 61 cases to 478 is regarded seriously by authorities, since it may presage an epidemic of the disease during 1922.

Not a single death or case of water-borne sickness has been traced to drinking water supplied by steam and electric railroads in Michigan the past two years, according to records kept by the state department of health.

This degree of safety was reached, officials say, by rigid inspection of sources of water supply, thus protecting the health of more than 25,000,000 passengers annually, who use the drinking water supplied by trains and interurbans.

Minnesota

Three counties of Minnesota—Beltrami, Hubbard and Koochiching—are planning to use during the month of April a film portraying the course of tuberculosis from the time it is discovered in the herd to the time when the girl in the family returns from a sanitorium cured. Clinics will be held at the same time the film is shown in the various centers. Good results have already been apparent from the clinic held in December, and it is planned to hold a number more during the summer season in Minnesota's fight against tuberculosis.

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A public-health institute was held in Minneapolis, March 20-25. A feature of the institute was a straight course in maternal and infant hygiene, directed by Dr. E. P. Lyon, dean of the Medical School of the University of Minnesota.

✣

In order to take advantage of the Federal Act for the promotion of the welfare and hygiene of maternity and infancy, and for other purposes, the State Board of Health created a division of child hygiene and gave the executive committee power to act on any matter, including the appointment of a staff and the fixing of salaries necessary for initiating the work of the division in case the appropriation becomes available before the April meeting of the board.

The board further appointed a State advisory Board on Maternal and Infant Hygiene of seven members, the functions of the board to be as follows:

1. To suggest rules and regulations for adoption by state boards of health as authorized under Chapter 392, Session Laws of 1921, to carry into effect the provisions of this act.

2. To pass upon plans of county or district boards on maternal and infant hygiene.

3. To advise the State Board of Health what assistance be given to county or district boards whose plans are approved.

4. To secure coöperative action through the various agencies represented by the members of the Board in carrying out the provisions of the federal and state laws on maternal and infant hygiene and to promote the public health and child welfare program in Minnesota.

The Board also provided for county and district boards.

New York

The death-rate of New York state for the year 1921 reached the new low level of 12.2 per thousand of the population, according to calculations completed by the State Health Department's Division of Vital Statistics. This rate may be compared with that of 13.8 for the year 1920 and 14.7 for 1914, the year in which the State Department of Health was reorganized and took on its present form.

In terms of lives saved, the rate for 1921 means that approximately 16,000 more residents of the state are now living than would have been the case if the 1920 death-rate had not been reduced as above indicated. Comparing 1921 with 1914, the difference in the death-rate means that 26,000 more people are now alive than would have been if the 1914 rate had prevailed up to the present time. New York City, with a death-rate of 11.2 still retains its lead over the remainder of the state, for which the 1921 rate was 13.5 per 1,000 of population.

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The great scarcity of rural physicians in the northern part of New York state is emphasized in severe winter weather, when it is impossible to keep the country roads open for automobiles. Byron Haskin, M. D., health officer at Theresa, New York, reports that the establishment of a rural hospital in his district has done much to relieve the situation. The hospital was started by a middle aged woman who had done much practical nursing. The support of the Red Cross, local fire departments and fraternal organizations was secured, all of which enabled the hospital to operate with very light running expenses.

Patients have good care, and physicians are relieved of long drives and hours of

waiting. During the two years of the existence of the hospital, 225 patients have been treated. There have been 45 throat operations, 67 confinement cases, 2 typhoid fever cases and 7 pneumonia cases. Only 2 deaths have occurred.

North Carolina

The Health Department of the city of Winston-Salem, N. C., has just published its annual report for 1921. This, the fifth annual report of the department, is similar to the report for 1920 in scope and size. The Health Department deserves to be complimented not only on the excellent showing of work done, but for its presentation in graphic and simple form. The report is unique in that it includes not merely a statistical record of work accomplished, but on the basis of these records the value of health work is explained and quotations are included from various health authorities. It constitutes, in fact, an elementary health manual for the lay worker. It is quite frankly addressed to the "average citizen" of Winston-Salem, and should succeed in enlisting the continued support of these people for the Department of Health.

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A reduction of approximately eighty per cent in the number of deaths from typhoid fever within the past ten years is indicated in preliminary figures compiled by the State Board of Health for the year 1921. Starting with an unusually early spring and the development of an alarming number of cases in the first third of the year, 1921 proved to be the best yet recorded in the fight against this disease, which ten years ago was claiming in excess of a thousand victims each year. The decrease in deaths from typhoid fever has been continued and marked. The figures for the years tell the story: 1915, 744; 1916, 700; 1917, 726; 1918, 502; 1919, 427; 1920, 330; 1921, 280.

An active antityphoid campaign was inaugurated early in 1921 and carried forward in fifty counties of the state. In this were enlisted county and city health officers and a large number of private physicians. In twenty-five of the counties not having health departments the aid of eighty-six physicians was secured for the purpose of administering antityphoid vaccine, and the results achieved exceeded any year since this method of combating this filth-borne disease has been used in North Carolina.

Improved sanitary conditions hold first place as the cause of the achievement. Throughout the state there has been a wonderful betterment in public water supplies, in safer production and handling of milk, and in the proper disposal of sewage. The state law requiring sanitary privies wherever water sewerage systems were not available has probably been the biggest single factor. North Carolina has the distinction of being the only state having such legislation, and it has been very successfully enforced. The vaccination campaigns have during the period conferred temporary immunity upon approximately one million of the population of the state, and at the same time have had a tremendous educational influence towards improved sanitation.

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With a total of 89,623 births registered for the past year, North Carolina has broken its own record for the highest birth-rate in the Union, established in 1920. At the same time a new low level in the death-rate for the state is established.

While the birth-rate is a matter of pride, yet it is the death-rate that health officials watch most closely, and the constantly declining death-rate in this state is the cause of genuine gratification. In terms of lives saved, the lowering of the death rate for 1921 as against the previous years means that approximately 3,292 more people are today alive and serving their respective communities than would have been if the 1920 rate had prevailed. The figures eloquently attest the fact that North Carolina is a good place in which to be born and to live, and that its people as a whole are constantly growing healthier and happier.

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Pennsylvania

A public-health institute was held in Pittsburgh, February 20-24, under the auspices of the University of Pittsburgh, the U. S. Public Health Service and the State Board of Health The Pittsburgh institute confined itself to courses on venereal diseases and allied problems, and to industrial hygiene. There was a special conference for women not professionally interested in public-health work, at which Dr. Rachelle Yarros was the leading speaker.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst and E. B. Starr.

Ventilation, Weather, and the Common Cold.—This dissertation presented in partial fulfillment of the requirements for a higher degree at the University of Michigan is a study of the presence of respiratory affection among school children and its association with school ventilation and the seasonal changes in weather. Sickness surveys in different types of ventilated school rooms were made with particular attention to humidity, freshness and odor of the air, the sensation of temperature, sensation of moisture, air motion, and a discussion of the ventilation types represented in this study. The paper is replete with tables and graphic charts. The author states that "there appears to be something inherent in the indirect method of ventilating school rooms by means of forced draught and gravity exhaust, as practiced in this study, that is productive of respiratory affections, something which is not present in rooms ventilated with windows and gravity exhaust. What these unfavorable elements are is not entirely clear. Higher temperature is one. Uniformity of temperature and air flow is another. Uniformity is characteristic of the fan-ventilated room. In an unvarying atmosphere the occupants miss that pleasant stimulating effect. Evidently the absence of this quality affects health adversely as well as comfort." "The temperature of window-ventilated school rooms may be reduced as low as 59 degrees without increasing the prevalence of colds." The fact remains that window ventilation competed on favorable terms, from a hygienic and aesthetic standpoint, with the most elaborate and costly fan and duct equipment. The author states that while this may be true for the ordinary school room it does not follow that large assembly rooms would be similarly affected. Each type of inclosure must be handled as a distinct problem. The author advises a constantly changing atmospheric condition, without draughts, between 64 and 70 degrees temperature, with the mean lying nearer the lower figure. It is also not to be overlooked that respiratory affections increase with the onset of cold weather, irrespective of the type of room ventilation. Abrupt changes in temperature do not influence respiratory illness as much as one might expect from every day experience.—Geo. T. Palmer, *Jour. of Laboratory and Clinical Medicine*, Aug., Sept., Oct., 1921.—*E. R. H.*

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The Treatment of Carbon Monoxide Poisoning.—After summarizing the frequency of causes of carbon monoxide poisoning, the commoner causes, and the chief symptoms of both acute and chronic forms, the authors insist on the vital importance of eliminating carbon monoxide poisoning from the blood as rapidly as possible. Since oxygen is the natural substitute its use should be produced rapidly and thoroughly. The oxygen should if possible be given through an inhalator similar to the Tissok army face mask which can be fastened over the patient's face; otherwise through a nasal catheter; or it can be sprayed directly about the patient's face. Its use should be kept up for at least twenty minutes. The authors recommend that all ambulances be equipped with oxygen tanks. The importance of the Schaeffer method of resuscitation as a first-aid means is stated and the method is briefly described. This procedure should be continued for at least three hours, during which time the patient's general comfort should be seen to and he should be kept quiet for fear of heart failure for some time after recovery. External warmth is especially to be applied as well as stimulants.—R. R. Sayers and H. R. O'Brien, *U. S. Bur. of Mines, Serial No. 2304*, December, 1921.—*E. R. H.*

✣

Sickness Frequency Among Industrial Employees.—This is a further report of the continuous study which is being made by the Service of the sickness frequency among industrial employees in a number of sick benefit associations of employees who are coöperating with the Service. The summaries for the first eighteen months' experience are presented. Cases of sickness of less than a week's duration are not included. Therefore, only the more serious cases of sickness and non-industrial accidents are covered. Only a small proportion of the membership is composed of women. The striking effect of seasonal variations in sickness incidence is shown in the

charts and tables which accompany, serious illness occurring about twice as often in the winter season. This is particularly true of respiratory diseases. On the other hand, digestive diseases exhibit no tendency toward seasonal variation. Tonsillitis and other diseases of the pharynx follow the characteristic curves of the other respiratory diseases. There is a tendency of the peak of the curve for rheumatism to be reached a month or two later than for the three respiratory diseases mentioned. Rheumatism is most frequent in the spring. The severity rate for one benefit association as compared to another varied enormously, e. g., from 10.27 calendar days of disability per person in one organization to only 1.54 days of disability per person in another.—*U. S. Public Health Reports*, Vol. 37, No. 1, January 6, 1922, pp. 2-9.—*E. R. H.*

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Tuberculosis in Relation to Industry.—In this lecture Cummins views the subject of tuberculosis in relation to industry from the standpoint of a careful student of tuberculosis rather than from the point of view of the industrial specialist or the statistician. "In a 'social' disease like tuberculosis, occupation, circumstances, and surroundings most inevitably play a large part." The author values highly the mortality statistical observations made by Brownlee and Greenwood, but deplores the fact that mortality statistics are almost the only statistics of a reliable kind at our disposal. In the populations of industrial centers infection tends to take place early, to be frequently repeated and almost universal shortly after the age of puberty. The proportion, however, of fatal cases to total infections is low in the big towns and high in rural districts. The ingestion or inhalation of tubercule bacilli must, in large cities, be a daily occurrence. The question is then raised whether auto-infection or fresh-infection is the more important. In favor of the theory of recrudescence of infection is the instance of mortality rates among soldiers serving at the front from whose midst the active cases had been taken out by draft examinations. The question of special industrial hazards in the form of dust is relatively less important than the other factors which have a more general application to the industrial group and include bad housing, unsuitable conditions of work, crowding, unhealthy temperatures, bad ventilation, low wages, poor food, and lack of open air exercise. In this connection the author points out that it is not hard work that matters; that hard work, such as that performed by the coal miners of England, is conducive to optimum physical condition. The author contrasts the condition of shoemakers whose tuberculosis mortality is very high and whose work requires cramped position, lack of hard physical exercise, long hours of monotonous repetition of detail. These workmen suffer by reason of the marked departure from what the author is pleased to call "physiological righteousness." The author then takes up the investigation of J. Brownlee among various groups of industrial males, in whom the apex of highest mortality is at about 50 years (the chronic middle age type). In all these occupations it is the stress of environmental factors which act in undermining the resistance and awakening dormant infection. As for females who pass their time in the relative isolation of domestic duties, the author again refers to the finding of Brownlee that the peak of mortality comes earlier with females in the period 30 to 40. In other words the domestic female is less resistant than the industrial male and gets the disease in more acute form. The female in entering upon industrial life is thus poorly prepared for the "bacterial flora" found there. Under such circumstances the young females entering industry, develop the peak of mortality early, from 15 to 20 years, as found by Greenwood among female munition workers. The average resistance of the industrial community is relatively high. Above the average is the adult industrial male, whose resistance is broken later in life by stress. Among these, however, are those exposed to specific trade dangers, silica and other dusts, whose resistance is likely to be broken earlier, and for whom special precautions must be taken. Below the average in resistance are the domestic females who die earlier (early acute type), but at a lower rate than the industrial male. Infants and young children will be in greater danger the more women participate in industry and gradually assume the chronic resistant type of tuberculosis found in the industrial male.

As to the practical bearing of these views in the management of industrial tuberculosis, the author divides individuals into two classes: those in whom infection plays a small part and those in whom it plays a large part. In the former are the great class of males who

are not exposed to the dangers of industrial dusts, and among whom the lines of prophylaxis should be directed to relief from unhygienic stress, poverty, etc. In the second class are males exposed to dangerous dusts, and young industrial females, in both of whom the factor of infection is important (in females because of low resistance). In this class careful medical supervision with the prompt exclusion of active cases is imperative.—S. Lyle Cummins, *Jour. of State Medicine* (London), Vol. 30, No. 1, January, 1922, pp. 4-14.—*E. B. S.*

✣

Health and Welfare in the Coal Mining Industry.—The author briefly describes the evolution of industry and the general recognition, especially since the beginning of the war, of the human element needs, which had hitherto been so largely neglected. Citation is made to the Police, Factories, etc., Act of 1916, and the Mining Industry Act of 1920. The latter provides for the establishment within mining units of machinery and funds to permit activities along the lines of safety, health and welfare. The law provides for the setting up of pit and district committees and area committees, half the personnel of which must be representative of the miners. The author describes the lines along which the best results are likely to be attained, both in improvements during working hours, and outside of working hours. Besides demonstrating the great cost of labor turnover and the serious effects on industry and the men, the author describes the means, namely vocational selection, by which much of this trouble may be overcome. The author lays down four essentials for contentment and health during working hours: proper air to breathe, good water to drink, good food to eat, and a healthy skin. Reference is made to the benefits that have accrued to the manufacturing industry by the installation of canteens, and while it would not be feasible to carry out this program in the mining industry, it certainly seems feasible to provide the "colliery kitchen" where freshly cooked food could be prepared at the pit and sent down into the mine. Stress is laid on the great importance of maintaining a state of health in that very important organ of the body, the skin, and the moral advantages attained thereby.

Poor underground lighting is a contributing cause of many accidents and also of miners' nystagmus, so common among miners in the United Kingdom, 6,000 of whom are incapacitated thereby. The question of bronchitis and pneumonia is in need of special study in certain of the coalfields. The author indicates the directions in which improvements should take place, under the Mining Industry Act, in the time spent outside of working hours. Besides the usual athletic activities providing recreation, the author refers to the great benefit that has come from the allotment of gardening space. Provisions may be made for greater facilities for education as already provided by some mine operators. Finally the author directs attention to a very interesting observation in connection with the problem of industrial unrest, namely, the close relation existing between mortality in the seven great coalfields, and industrial unrest, as expressed in terms of strikes. Four types of disability are found to account for the divergencies in death-rates in the seven coal fields: accidents, pneumonia, bronchitis, and tuberculosis. In this connection the author makes the statement that "the evidence is almost tantamount to proof that the usual reasons given for social unrest are merely conscious efforts to explain unconscious impulses, and that these unconscious impulses are founded upon health, or, more correctly, upon ill-health."—Collis, Edgar L., *Jour. of State Medicine* (London), Vol. 30, No. 1, January, 1922, pp. 15-27.—*E. B. S.*

✣

A New Journal of Industrial Medicine.—The Belgique Ministere of Industry is editing *Bulletin du Service Medical du Travail*, the first two numbers (Volume 1) of which, under date of June 30, 1921, have just appeared. The journal is published at Bruxelles, Imprimerie-Lithographie Stevens, 9, Rue des Fortifications, 9. It is quarterly and is priced at 4 francs. The volume at hand contains 141 pages and is in French. The contents of the volume are divided into four parts: (1) official documents, (2) service activities, (3) studies in hygiene and industrial medicine, and (4) analyses, abstracts, and biliographical notes. The six studies coming under Part III include the following: "Hygiene and Vulcanization of Rubber by Means of Carbon Bisulphide," by M. le Docteur Vandermierden, Directeur. "The Effects of Working in Hot and Humid Atmosphere," by M. le Docteur Thisquen, Inspecteur-principal. "Tendosynovitis of the Wrist," by M. le Docteur Buyse, Inspecteur-principal. "The Toxicity of Modern Explo-

sives," by M. le Docteur Glibert, Inspecteur-general. "A Note upon Intoxication with Dinitrobenzene," by M. le Docteur Buyse, Inspecteur-principal. "Contribution to the Study of Mercurialism in Fur Dressers," by M. Ch. Biot. Inspecteur et Directeur du Laboratorie.—*E. R. H.*

✣

Common Salt Not a Source of Iodine in the United States.—After reviewing the literature on the relation between goiter and the absence of iodine in the diet, the writer goes into the geochemistry of our ordinary condimental salts including sodium chloride and sodium iodide. The infrequency of goiter in maritime districts is noted. The source and preparation of common salt and its uses in the United States are discussed. The average per capita consumption per person was 116 pounds per year (1919). Table and dietary salt makes up about 10 per cent of the total produced, about 96 per cent of which is from inland (rock salt deposits) which is inherently free of iodine and the salt put upon the market for dietary purposes is so purified as to be bereft of all iodine and many other salts, found and acknowledged to be of use in the animal body. Among his conclusions the author states as follows: "Practically all salt used in the United States for dietary consumption is obtained from inland sources by the evaporation of brines, which for the most part are inherently free of iodine."

"Irrespective of the source, whether sea water or inland deposits, the modern processes of preparing and purifying salt free it from all traces of iodine, as well as its other naturally associated elements, many of which are identical with the body fluids of higher animals."

"An analogy should be drawn from sea life and a precept taken from evolution. Of the dependable sources of iodine in nature—sea air, sea food and sea water—it is to sea water, used perhaps in place of common salt as a condiment, that inland dwellers should look. This substitution would appear to offer a complete solution to the iodine deficiency problem, if nothing else, while evidence would tend to show that other constituents of sea water have also an undoubted place in the economy of the higher animal organism, perhaps to the extent of precluding some diseases which are likewise, possibly, of a deficiency type. Common salt for dietary purposes should include not only sodium chloride but also sodium iodide, and undoubtedly many of its other original concomitants. For geochemical reasons, great care should be taken in selecting its source, if it is not actually derived always from sea water. It must then be handled commercially in a manner to retain these constituents."—E. R. Hayhurst, *Jour. of the Amer. Medical Assoc.*, Jan. 7, 1922, Vol. 78, pp. 18-21—*E. R. H.*

✣

Industrial Nursing As a Means of Fighting Tuberculosis—"The public-health nurse in industry is, to my mind, the educator. Her fundamental task is to educate not only the employee, but the employer as well. There are certain things which the nurse alone can do (and I say this with all due respect to the medical profession). The nurse will have to meet responsibilities in industry which will be her's, rather than the physician's, because she has the possibility of making intimate contacts in the home. . . .

"To-day we have great, large industries where the employers are very much detached from the employees and it happens only too frequently that the employer has no knowledge of the conditions in the homes of his employees. The instances are only too frequent where men come in to work and are accused of listlessness and are fired. The employer may not know that the listlessness may have been caused because the employee may have sat up all night nursing a sick wife or child. It is the industrial nurse who goes into the home, who sees these conditions, and who can bring them to the knowledge of the employer.

"It is a part of the duty of an industrial nurse to see that industry takes proper care of its employees, not only by seeing that their homes and surroundings are proper, but that they get proper food, live in decent houses and have time for rest and recreation. It is also her duty to see that there are sanitary conditions in the plant and that the safety conditions are at the maximum.

"When we can get these things, when the nurse can get into the right relationship with the employer, get his sympathetic coöperation and good-will and make him see the larger vision of his relationship to his employees, then we are going to see among the early results the introduction of periodic health examinations. The inevitable result will be that we are going to find cases of tuberculosis that are unknown to-day. We are going to find early treatment and every probability of cure."—Lee K. Frankel, *Public Health Nurse*, January, 1922.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by ARTHUR LEDERER, M. D.

Viability of the Colon-Typhoid Group in Carbonated Beverages.—Under the conditions of these experiments, carbonation exerts a distinctly harmful effect upon the members of the colon-typhoid group and their period of viability in carbonated water is much shorter than that in plain tap water. The destructive effect of the carbon dioxide is especially marked at room temperature, 19° to 23° C., and less so at 1° C. In a "non-acid" beverage, the organisms may persist for a slightly longer period than in carbonated water. In beverages containing 0.094 per cent or greater amounts of citric or lactic acids, the death-rate is very rapid and is apparently due to the effect of these acids, irrespective of the carbon dioxide. Bact. typhosum and Bact. paratyphosum B are more readily destroyed by carbon dioxide than is Bact. coli. The spore forms of a common aërobe, B. mesentericus, and of a common anaërobe, Clost. sporogenes, were found to be quite resistant to carbonation, surviving one month at room temperature with no apparent diminution in numbers.—S. A. Koser and W. W. Skinner, *Jour, Bact.* 7, 111 (1922).

✣

Quantitative Bacteriology of the Tonsils.—The results of this work indicate that tonsils should not be regarded as harmless because they are small. It is often not possible to express pus from the smaller tonsils, because drainage of the crypts is prevented by fibrous tissue. The total bacterial content, as well as the number of bacteria per gram, may be much greater than that of large tonsils. Quantitative bacteriology is of more aid than is qualitative bacteriology in determining the condition of tonsils that have been removed, and in determining their possible relation to disease elsewhere in the body.—H. D. Caylor and George F. Dick, *Jour. A. M. A.*, 78, 570 (1922).

✣

Collodial Gold Chlorid Curve in Epidemic Encephalitis.—No characteristic collodial gold chlorid curve was obtained by the author with cerebrospinal fluids in epidemic encephalitis. When there was a color change, it occurred in the lower spinal fluid dilutions (syphilitic zone). This result agrees with those in the recent publications of Davis and Kraus, Happ and Mason, and Neal. There was no relation between the colloidal gold chlorid reaction and the duration of the disease. The colloidal gold chlorid curve apparently was nct influenced by the total cell count, nor by the polymorphonuclear or mononuclear leukocytic percentages. The colloidal gold curve did not depend on the globulin content of the fluids. There was no relationship between the colloidal gold chlorid reaction and the colloidal benzoin precipitation reaction. The Wassermann reaction with all fluids was negative. Spinal fluid from a patient with epidemic encephalitis may give a typical paretic curve with colloidal gold chlorid when there are no symptoms or history of syphilis.—K. M. Howell, *Arch. of Neur. and Psych.*, 7, 229 (1922); *Jour. A. M. A.*, 78, 542 (1922).

✣

The Influence On Spore Formation of Sealing Bacterial Cultures.—The reduction of methylene blue in culture tubes of sterile media closed with sealing wax proves that a reduction in oxygen tension can be obtained by this simple method. The moisture of the medium is also preserved over a long period. Sealing cultures retarded the formation of spores and killed the majority of the vegetative forms of the aërobes and facultative anaërobes but not of the obligatory anaërobes. It affected the vegetative growth of obligatory aërobes more rapidly and intensely than that of facultative anaërobes. It did not apparently affect the growth of obligatory anaërobes as compared with that in unsealed culture tubes containing a small piece of sterile tissue. Among the aërobes and facultative anaërobes, spore formation was retarded a few days longer in the second sealed series inoculated from the first than in the first sealed series, after which no variation in the time of appearance of spores occurred in cultures carried through six successive series. The results obtained with the anthrax bacillus differed from those of the other facultative anaërobes and showed no uniformity. Experiments with different salts appeared to increase the rate of spore production and the spore formation under partial oxygen

tension. The absence of a free supply of oxygen caused a temporary change in the form of the bacillus.—Laura Florence, *Jour. Lab. Clin. Med.*, 7, 199 (1922).

✣

Paroxysmal Hemoglobinuria and Isolation of Substance Causing the Wassermann Reaction.—The author states that signs of syphilis were evident in 30 per cent of the 207 cases of paroxysmal hemoglobinuria he has compiled, and the Wassermann reaction was positive in 95 per cent of the 76 in which this test was applied, and in 2 or 3 cases personally observed. His experiments demonstrated that the hemoglobinuria from chilling is able to induce a positive response to the Wassermann test in the absence of syphilis. He succeeded in isolating from the blood in these hemoglobinuria cases the amboceptor that induces the positive response in the Wassermann test. When added to normal serum, the Wassermann test then applied elicited a positive response. This "chilling amboceptor" seems to combine with the lipoids in a warm environment, but it does not combine with the erythrocytes (and thus induce hemoglobinuria) except at a chilling temperature. He states that his research preceded Wassermann's recent announcement that he had separated the "Wassermann aggregate" into a "Wassermann substance" and a lipoid. The two form a reversible combination. (The "Wassermann substance," Wassermann explains, displays all the properties of an amboceptor and is thus an antibody. This discovery of the amboceptor inducing the Wassermann reaction is the first time that an antibody for lipoids has been isolated. Wassermann ascribes the action of mercury to its effect on the lipoid metabolism of the cells, more than to its action on the spirochetes. He has recently announced further what he calls the "bestaetigungsreaktion," or confirmatory reaction, in syphilis, but has not divulged the technic. He says that he has applied for a patent on it. His communications were published in the *Berliner klinische Wochenschrift*, 58; 195 and 331, 1921).—J. Burmeister, *Zeitsch. klin. Med.*, 92, 19 (1921); *Jour. A. M. A.*, 78, 395 (1922).

✣

Actinomycosis.—Many cases are difficult to diagnose definitely previous to suppuration or sinus formation. Even then if secondary infection is marked or the disease has been of long duration with contraction and induration of the tissues, it may be impossible to come to a definite conclusion by the use of smear, cultural methods, or biopsy. The task is rendered less difficult, however, by the fact that the condition if acute will likely soon soften with suppuration and abscess formation. If chronic it is a slowly spreading process and if untreated a persistently recurring one. At some time it will exhibit an area or areas of softening and abscess formation that will make diagnosis easy. Radiation hastens this process and is occasionally the means of definite determination of the condition. Practically the diagnosis is made very simply by finding little yellow bodies in the purulent discharge from an incised abscess or open sinus, if one remembers to look for them. As is usual in diagnosis generally, there is where failure usually lies. The granules may be caught on the end of a small instrument and placed on a slide. A few drops of water (tap water will do) are placed over and around it; then it is rolled around in the water to wash away the pus. Now by moving it to another area of the slide it is isolated and may be crushed under a cover glass. Examination under the microscope will show a characteristic daisy formation. If the yellow granules are present in the purulent discharge, they are unmistakable. If they are absent one is always in doubt and will pick out particles of inspissated pus or other debris, only to find that they disintegrate in the water on the slide or show only pus and epithelial cells under the microscope. Pathologic examination of tissue prepared from a newly formed nodule excised near the margin of an advancing lesion may show the characteristic granules. The mycelia are gram-positive and acid fast.—Paul A. White, *Ill. Med. Jour.*, 41, 99 (1922).

✣

Wassermann Reactions in Four Hundred and Eighty-Four Supposedly Nonsyphilitic Patients.—The results of 567 Wassermann tests on 474 unselected patients admitted to hospital are reported with some discussion of the findings. In 201 cases of pregnancy, one positive reaction with cord-blood reaction corroborated by a positive reaction in the blood of the mother occurred, an incidence of 0.5 per cent. Nine positive reactions in the cord blood alone were obtained. In 283 cases presenting miscellaneous medical and surgical conditions,

forty-seven positive reactions occurred, an incidence of 6 per cent. In the 494 cases of the entire series, approximately 12 per cent of positive reactions were obtained; in twenty of the fifty-seven cases in which the patients reacted positively, there were either clinical or historical findings to corroborate the results of the Wassermann test.—Robert A. Kilduffe, *Arch. Derm. Syph.*, 5, 207 (1922).

✚

Individual Variation as Influencing Rehfuss Fractional Method of Gastric Analysis.—In a critical study of the Rehfuss fractional method of gastric analysis, the following results were obtained in normal and psychotic individuals: Repeated analyses on the same individual within a short period of time, while the physical and mental condition remain practically unchanged, yield different curves. These curves from the same individual vary as much from one another as the differences between the curves of different individuals. Variation in the highest point on curves from the same individual often exceeds differences between the highest points of different individuals. Variation in the total amount of fasting contents from the same individual is often greater than between different individuals. There is an imperfect correlation between the measurment of gastric acidity by the titration method and hydrogen-ion concentration determinations. The latter yields more important information regarding true acidity. This agrees with the work of Shohl. Similar results were obtained when repeated analyses were made on healthy normal individuals showing no gastric symptoms. In only half of the instances was there any correlation between high gastric acidity and low bacterial count. This indicates that another unknown factor is in operation. It is suggested that the bacterial content of the stomach depends on the swallowing of saliva. Bacterial counts, reaction of saliva and observation of amounts swallowed substantiate this, as well as removal of saliva during the analysis. There is little difference in the gastric acidity of patients diagnosed as having dementia praecox and manic-depressive insanity. Subject to the limitations of the investigation, it is indicated that single determinations of gastric acidity by the Rehfuss method are not sufficient on which to base conclusions, because they do not take into consideration individual variation.—Nicholas Kopeloff, *Jour. A. M. A.*, 78, 404 (1922).

A Guinea Pig Rapid Method For the Diagnosis of Tuberculosis.—The specimen in question is first treated with a small quantity of weak alkali, enough to make a thin, rather nonviscid fluid if tenacious sputum is used, for instance. If urine is to be examined, its thoroughly centrifuged sediment is treated with alkali. Alkalis, such as weak antiformin or 3 or 4 per cent sodium hydroxid, are employed. From thirty to sixty minutes later, after one drop of a 1 per cent phenolphthalein solution as an indicator, normal acid is added cautiously until a neutral point is reached. To this practically neutral, sterile solution, dye (gentian violet) is added in approximately 1:3,000 or 1:5,000 dilution. A 20 or 22-gage needle is thrust into the liver of a guinea pig. This is not difficult. The median line very close to the flare of the ribs or a point bisecting the right hypochondrium may be chosen as a site for the injection. Regular respiratory oscillations of the needle indicate that it is lodged in the liver. From 1 to 1.5 c.c. of the dye-colored, neutralized solution is now injected. All manipulations should be done aseptically. Guinea pigs are readily inoculated in this manner; they require no anesthesia and, apparently, show little if any discomfort. From twelve to sixteen days later, they are examined postmortem. Macroscopically there is, as a rule, distinct evidence of tuberculosis in the liver and spleen. If there is any doubt as to the nature of the lesion, a portion of the liver is sectioned and treated with Ziehl-Neelson stain. Tubercle bacilli are then readily observed lying in scattered discrete areas of newly formed cell (endothelial). The method outlined will possess clinical practical value only if it will serve to demonstrate tubercle bacilli in the guinea pig after inoculation from specimens in which tubercle bacilli could not be discovered during prolonged and diligent search; it is, therefore, offered for clinical criticism.—H. R. Miller, *Jour. A. M. A.*, 78, 279 (1922).

✚

Basal Metabolism in Myelogenous Leukemia.—The basal metabolism in myelogenous leukemia bears a relation particularly to the number of immature white cells in the blood stream, regardless of the total leukocytosis. The highest values for the basal metabolism are usually found in cases with very high white counts and many myelocytes, or in cases showing high percentages of myeloblasts. Both of these findings probably signify

great activity of the leukopoietic tissue, and the basal metabolism determinations may be considered as indices of this activity.—A. H. Gunderson, *Boston Med. Surg. Jour.*, 185, 785 (1921); *Jour. A. M. A.*, 78, 306 (1922).

✣

Modification of Fontana's Method for the Demonstration of Spirochaeta Pallida.—This modification concerns the staining stage of Fontana's method and should be carried out as follows: (1) Smears fixed by heat are kept for a few minutes in a solution consisting of formalin 50 c.c., acetic acid 2 c.c., distilled water 150 c.c. (2) After washing with distilled water, pour on the slide a few drops of a mixture of 5 gr. of tannic acid, 3 gr. of carbolic acid, and 100 c.c. of distilled water. Warm on a flame up to boiling point. (3) Wash repeatedly. Pour on the slide pure ammonia; after a few seconds pour it off, and, without washing, allow a 0.5 per cent solution of $AgNO_3$ to pass from one side of the slide over the smear. As soon as this has become brown, the staining is finished and there only remains washing the preparation and drying it over a flame.—G. Stura, *Pathologica*, 13, 98 (1921); *Med. Science*, 5, 439 (1922).

✣

Further Observations on the Blood-Sugar Tolerance Test in Gastro-Intestinal Cancer.—From further study of the blood-sugar tolerance test in malignant as well as in benign diseases of the gastro-intestinal tract, the authors are more fully convinced that this test may be utilized to great advantage as a means of differentiating between these affections, and that while it cannot in any way be considered specific for carcinoma, when taken into consideration with the other clinical evidence it may serve as a valuable aid in diagnosis in obscure cases of carcinoma of the gastro-intestinal tract.—Julius Friedenwald and George H. Grove, *Am. Jour. Med. Sciences*, 163, 33 (1922).

✣

Survival of the Typhus Fever Virus in Aërobic and Anaërobic Culture Media.—In a variety of media kept at 37° C., and from which oxygen is excluded by a petrolatum seal, the typhus virus tends to die rapidly. In the corresponding media under aërobic conditions, the life of the virus is appreciably longer.—Peter K. Olitsky, *Jour. Exp. Med.*, 35, 115 (1922).

Sources of the Antibodies Developing After Repeated Transfusion.—The massive agglutination observable in the shed blood of transfused rabbits, and associated not infrequently with sudden marked blood destruction, has a practical significance in connection with the untoward results of repeated transfusion from donors originally compatible; and it has special theoretical interest because the clumping of the cell is apparently an autoagglutination. The agglutination in its most marked form has been traced to isoantibodies elicited by the presence in the body of corpuscles originally found compatible; and the frequently associated, rapid blood destruction is doubtless of similar origin. Occasionally antibodies develop in the donor bloods during the period of transfusion, but they are so weak as to be negligible. There remain instances of what would seem to be true autoagglutination due to serum bodies induced by the transfusions as a by-product, so to speak, in the manufacture of isoagglutinins. The antigenic relationship between the red cells of different rabbits is so close that normal isoagglutinins became fixed in the cold upon their elaborator's own corpuscles. Agglutinins exist within the red cells of rabbits—as has been claimed by Klein. They are readily demonstrable in watery extracts of the dried corpuscles. Whether similar agglutinins ever exist within human cells remains to be determined. The authors have not found them in the normal corpuscles.—Oswald H. Robertson and Peyton Rous, *Jour. Exp. Med.*, 35, 141 (1922).

✣

Phenol Red and Brom-Cresol Purple as Indicators in the Examination of Feces.—Either phenol red or brom-cresol purple may be used as indicators in the preparation of lactose agar plates for the isolation of members of the typhoid-dysentery group of bacteria from feces. Of the two, brom-cresol purple gives sharper differentiation and is to be preferred. These indicators exercise no restraining influence upon the growth of cultures of the typhoid bacillus or paratyphoid bacillus freshly isolated from the human body, or of laboratory cultures of Bacillus dysenteriae. Both indicators may be successfully employed with brilliant green in the isolation of the typhoid paratyphoid group from feces without sacrificing the restraining activity of the brilliant green upon other bacteria.—Alan M. Chesney, *Jour. Exp. Med.*, 35, 186 (1922).

Hemolysis of Erythrocytes in Contact with Glass.—Washed erythrocytes, in both acid and alkaline solutions, hemolyze more rapidly when allowed to settle out on a clean microscope slide than when kept in suspension. This is also true on slides coated with paraffin, paraffin oil, or vaseline, and on mica surfaces. The presence of as little as 0.1 per cent serum inhibits such contact hemolysis, particularly in alkaline solutions. Contact hemolysis is most marked on slightly soiled glass, and may occur so rapidly with unfixed cells in a hemocytometer that accurate counts are rendered impossible. Erythrocytes are more sticky than normally in acid solutions, and less sticky in alkaline solutions. The increased stickiness of erythrocytes in acid solutions and their larger size during contact hemolysis in acid media provide some experimental evidence for the view that contact hemolysis is to be correlated with an attempt on the part of the corpuscles, or some ingredient of the corpuscle, to spread on the glass after the manner of leucocytes and invertebrate blood cells.—Wallace O. Fenn, *Jour. Exp. Med.*, 35, 115 (1922).

✣

The Reliability of the Wassermann Test as Performed by Different Pathologists.—A considerable degree of uniformity of results of the Wassermann test has been found among five pathologists. Certain differences (chiefly in the case of weakly positive sera) have, however, been noted. Their main source lies in the use of different methods and not in any lack of personal ability or care on the part of the worker. It is believed that the number of these could be greatly reduced by adopting a uniform method of performing the test and by standardizing the details of the method. The supply of a standard antigen and haemolysin to pathologists is recommended.—Joseph W. Bigger, *Jour. of Hygiene*, 20, 383 (1921).

✣

New Organism Akin to Botulinus.—The existence has been demonstrated of an anaërobic organism producing a soluble toxin which affects animals in a manner similar to that of the botulism organism but which fails to be neutralized by polyvalent botulinus antitoxin. Study of the organism, as found in the larvae of the green fly *Lucilia caesar*, indicates that it differs markedly from the botulinus isolated in the United States, and possibly is more nearly related to the European type described by von Ermengem in 1912, though it differs from this in important respects. Tests on laboratory animals by inoculation and by feeding caused death in from 5 to 71 hours. The most striking pathological result was, as in botulism, the congestion of the blood vessels of the brain and meninges. Efforts are being made to produce an antitoxin. The suggestion that the organism of the disease causes limberneck in chickens has not yet been demonstrated.—Report by Ida A. Bengston, U. S. Public Health Service.

✣

On the Direct Isolation of Tubercle Bacilli.—The author describes his experience with the Griffith method for the direct isolation of tubercle bacilli. The simplicity of this method, together with the uniformly successful results, constitutes a distinct advance over other methods at present in use for the direct isolation of tubercle bacilli from sputum. In 55 out of 56 specimens tubercle bacilli were isolated in pure culture. In the method as described by Griffith, equal parts of sputum and 10 per cent antiformin are mixed by shaking or stirring in a test tube, and a loopful of the mixture, after it has become partly liquefied, streaked directly onto suitable media. The most uniformly successful medium was found to be one containing beef liver infusion in the proportion of one part infusion to four parts of egg.—H. W. Lyall, *Amer. Rev. of Tuberculosis*, Jan., 1922, 899 (*D. G.*).

✣

CONVENTIONS, CONFERENCES AND MEETINGS

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Apr. 5, Utah Public Health Association, Hotel Utah, Salt Lake City, Utah.

Apr. 10-15, Oregon Annual Conference of City and County Health Officers, Multnomah Hotel, Portland, Ore.

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May 2-3, Association of American Physicians, Hotel Raleigh, Washington, D. C.

May 3, New York State Association of Public Health Laboratories, Albany, N. Y.

May 3-6, American Physical Education Association, Detroit, Mich.

May 4-6, National Tuberculosis Association, Washington, D. C.

May 8-11, American Society of Mechanical Engineers, spring meeting, Atlanta, Georgia.

May 15-19, American Water Works Association, Bellevue-Stratford, Philadelphia, Pa.

May 16-18, Illinois Medical Society, Mt. Vernon, Ill.

May 22-26, American Medical Association, St. Louis, Mo.

June 21, National Conference of Jewish Social Service, Providence, R. I.

June 22-29, National Conference of Social Work, New Biltmore, Providence, R. I.

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July 4-10, National Education Association, Hotel Plaza, Boston, Mass.

HEALTH NUGGETS

Germs, says the U. S. Public Health Service, are usually a hand to mouth affair. Better wash up.

Professor Raymond Pearl has discovered that the suddenness and the destructiveness of the first flu epidemic coincides significantly with the normal death-rate from heart diseases in many American cities. It does not so coincide with the death-rate of any other important disorder. The inference is obvious.

✣

That rats desert a sinking ship is proverbial. But it now appears that they berth in life boats, as if in preparation for sinking. Of 100 rats destroyed by fumigation on a steamship arriving at San Francisco, says the U. S. Public Health Service, 89 were killed in the four life boats.

✣

You need fresh air—day and night.

Don't be afraid of "night air." It is the only air there is at night.

Well kept alleys pay better dividends than well kept cemeteries.

Good health means good business. Bad health is bad business.

Disease prevention is even more important than fire prevention.

Tuberculosis kills more persons every year than any other preventable disease.

Coughs and sneezes spread diseases.

We've whipped the Germans. Now let's whip the germs.

I took a bath today—did you?

I scrubbed my teeth today—did you?

A rattlesnake warns you before it strikes—disease germs don't.

Don't cough in my face. I'd rather take a chance with a bullet.

Beware of the dastardly "D's"—Dirt, Despair, Disease, Dampness, Death.

Avoid patent medicines.

Open bedroom windows will help you keep healthy.

The promiscuous "spitter" is a menace.

One fly with its filthy feet can kill an entire family.

Preventable disease is not merely accidental. It is due to criminal carelessness.

If you give a preventable disease to someone and that someone dies, what are you?

Wealth without health is a mockery.

NOW READY JANUARY, 1922

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